The Goulstonian Lectures

ON

SOME DISORDERS OF THE CEREBRAL CIRCULATION AND THEIR CLINICAL MANIFESTATIONS.

Delivered before the Royal College of Physicians of London on March 11th, 16th, and 18th, 1909,

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LECTURE II.[1]

Delivered on March 16th.

THE CORRELATION BETWEEN THE CIRCULATORY CHANGES POSTULATED AS THE PRECIPITATING FACTOR IN THE EPILEPTIC FIT AND THE VARIOUS SYMPTOMS OF, AND THE RECOVERY FROM, THE ATTACK.

MR. PRESIDENT AND GENTLEMEN,—For any theory of the mechanism of the epileptic fit to rest on a sound basis, it is necessary that it should offer a reasonable explanation of, or at least not be inconsistent with, the various manifestations observed in the attacks. It is submitted that the circulatory failure here postulated does offer a more reasonable explanation than any hypothesis yet brought forward.

1. *The aura.*—Francis Hare maintains that the explanation of the aura is to be sought in the peripheral vaso-constriction which he postulates as preceding the cardiac inhibition. That a partial cerebral anæmia is capable of giving rise to the phenomena of an epileptic aura has been demonstrated experimentally by Leonard Hill,[2] who says: "I myself have twice produced clonic spasms in myself by compression of one carotid. The first effect on applying the compression was a *sensation in the eye on the same side; then there followed a sensory march of formication down the opposite side of the body. This began in the fingers, spread up the arm, then down the leg.* Finally clonic spasms of the hand occurred, accompanied by an intense feeling of vertigo and alarm."

The association of epilepsy with migraine is well known, and in a unique case recorded by Gowers of a girl who was subject to both migraine and epilepsy, the visual aura preceding the migraine was on one occasion followed by an epileptic fit.

Some of the prolonged symptoms in the more abnormal faints are obviously vaso-motor or cardiac in origin, and yet were they of momentary duration they would be typical epileptic auræ. Or, as Gowers puts it, in discussing one case with attacks of cardiac and respiratory distress: "Symptoms usually momentary, as the aura of epilepsy, become protracted, extended, as it were, into a vagal attack."

2. *Unconsciousness.*—In the absence of an aura (and it is noteworthy that it is frequently absent) the first feature in an epileptic fit is sudden loss of consciousness. So sudden may it be that the patient falls with the utmost violence. Current views on the pathology of epilepsy afford no satisfactory explanation of this. Yet so dramatic a feature should be susceptible of some simple explanation. The loss of consciousness is not caused by the convulsions. It precedes them in point of time, and in tetanus and strychnine poisoning the spasms may be every whit as severe as those of idiopathic epilepsy, but are not attended with unconsciousness. Now one of the most obvious causes, if not almost the only one, of sudden unconsciousness (excluding severe cranial injuries) is a sudden interference with the flow of blood to the brain.

The phenomena of the epileptic fit are commonly explained as being the result of an intense discharge from the cortical grey matter. On the motor side this discharge leads to severe muscular spasms, to excess of disordered function. As regards consciousness, this is absolutely and suddenly lost. I cannot understand how this can be caused by a discharge. It seems to me that the very opposite factor—viz., cessation of activity—must be involved. Consciousness is, I think, too commonly regarded as too mysterious to be governed by ordinary physiological processes, but the brain is certainly very tenacious of this attribute and a symptom so extraordinarily dramatic and serious as sudden unconsciousness demands an explanation. Save for conditions associated with the vascular system, such as cerebral embolism, stoppage of the heart, sudden faint, &c., sudden unconsciousness is an almost unknown event. But with a *sudden cessation (or extreme enfeeblement) of the whole cerebral circulation* unconsciousness *must* occur. The phenomena of heart block show that, in proportion as the period of cardiac asystole increases, we have varying degrees of cerebral failure, transient unconsciousness indistinguishable from that of *petit mal*, attacks with very transient spasm, and, finally, definite epileptic fits. Inasmuch as it has been shown that in some cases of idiopathic epilepsy cardiac inhibition does occur and precedes the onset of the fit it is difficult to avoid the conclusion that the unconsciousness and the fit are the direct results of the cardiac inhibition.

3. *Convulsions.*—The classical experiments of Kussmaul and Tenner prove the intimate relationship existing between a sudden cerebral anæmia and the production of convulsions. Their experiments were, moreover, not masked by the administration of anæsthetics. It is also well known that severe hæmorrhage in man can give rise to the most typical epileptic fit.

(*a*) *The mechanism of tonic spasm.*—This is a problem of great difficulty. Spasticity of muscles is observed in lesions affecting the pyramidal tract, and is accounted for by over-action of the spinal cord when the inhibitory influence of the brain is removed. In an epileptic fit tonic spasm appears with great suddenness. On the hypothesis of a sudden failure of the cerebral circulation it might be attributed to a removal of the inhibition influence of the brain (possibly allied to the decerebrate rigidity described by Sherrington in animals with transection of fore-brain). It is well known that sudden death may occur during puncture of lung for suspected pleural effusion and during the washing out of empyema cavities. In a paper published by the author on this subject[3] the insertion of the exploring needle was immediately followed in one case by death from cardiac failure, and the point of interest in this connexion is that it was accompanied by tonic extensor spasm of arms and convergent squint. The condition of the legs was not observed, but it is probable that they shared in the spasm. Similarly, tonic spasm occurred in two cases recorded by Cayley and by Vallin in which cardiac inhibition occurred during pleural lavage. It occurs frequently on experimental ligation of the cerebral arteries in animals. These facts support the view that the tonic spasm of the epileptic fit is due to sudden cerebral anæmia.

(*b*) *Clonic spasms.*—In the case of sudden death above recorded after exploratory puncture of lung only tonic spasm was observed. The change from tonic to clonic spasms in an ordinary epileptic fit is of great interest. Long Fox,[4] who attributed the loss of consciousness and the tonic spasm to cerebral vaso-constriction, ascribed the clonic convulsion to a "gradual yielding of the vaso-motor constriction, allowing at first more blood to enter the arteries than during the period of tonic spasm, but yet far less than is necessary for controlled movement or for rest." In this connexion a case recorded by Walter Broadbent[5] is of great importance.

> The patient was a woman, an epileptic, aged 44 years, who had suffered from rheumatic fever in childhood and showed symptoms of cardiac disease. One evening, when talking to her daughter, she suddenly became unable to speak plainly and became rigid. The daughter stated that, instead of the usual fit, there was irregular jerking confined to the right arm and leg. The left arm and leg remained absolutely passive. She passed urine in the fit. She was unconscious for five days after the fit. She then showed complete left hemiplegia, hemianæsthesia, and hemianalgesia. Death occurred on the ninth day. Post-mortem, in the right middle cerebral artery, just beyond the point of origin, a small embolus was found with a distal thrombus for half an inch. The cortex along the course of the vessel was softened; on section, the right corpus striatum and all the surrounding parts, including a portion of the frontal lobe, were in the state of extreme softening.

The importance of this case lies in the fact that the patient was the subject of epilepsy. It is presumable that the embolus gave rise to a fit in a subject prone to epilepsy,

[1] Lecture I. was published in THE LANCET of April 3rd, 1909, p. 963.
[2] The Physiology of the Cerebral Circulation, p. 142.
[3] St. Thomas's Hospital Reports, 1899, vol. xxviii., p. 465.
[4] The Influence of the Sympathetic on Disease, 1885, p. 252.
[5] Cerebral Embolus during an Epileptic Fit, Brain, 1903, vol. xxvi., p. 447.

but the fit was represented by right-sided spasms only. The left side remained absolutely passive and the embolus in the right middle cerebral artery would prevent the return of blood to the right half of the brain after the cardiac inhibition was passing away.

4. *The physiological mechanism underlying recovery from an epileptic fit.*—Whatever be the immediate factor precipitating an epileptic fit, it is one which is very transient in its action and speedily recovered from. It is one, moreover, which is obviously capable of being brought into action repeatedly. In epilepsy of long duration the patient exhibits a very marked mental degradation, but the effect produced by each fit is imperceptible. Quite apart from the effect produced on the brain by the repeated attacks of cerebral anæmia here postulated as the essential factor of the fit, the intense venous engorgement resulting from the convulsive movements and the asphyxial character of the blood would presumably inflict considerable damage on the brain substance, damage, moreover, repeated over and over again. It would not appear unreasonable to assume that the slight morbid changes described in the brains of epileptics are merely the results of these cumulative lesions. Nothing is more striking than the completeness of recovery from an epileptic fit. Whatever the cause, it seems to pass away absolutely. On the supposition that the fit is due to a sudden transient cerebral anæmia, produced by cardiac inhibition, recovery follows on return of the circulation. It might be urged that if the fits are due to cardiac inhibition it should occasionally happen that the heart should stop permanently and that death in a fit should be at any rate not uncommon. If the stimulus responsible for inhibition be sufficiently intense death doubtless would result, as in the case of sudden death recorded above on exploratory puncture of the lung. But though experimental stimulation of the vagus nerve with very powerful stimulus does rarely produce permanent arrest of the heart, it is a fundamental physiological fact that there is a practically irresistible tendency for the heart to recommence beating, even during the stimulation—the so-called *vagus escape of the heart.* This escape of the heart is submitted as a feasible explanation of the recovery from the fits in those cases which are associated with actual cardiac inhibition, whilst in those dependent upon cerebral arterial spasm the fit would subside with the disappearance of the spasm.

5. *Post-epileptic phenomena.*—Though recovery may be very rapid after a mild fit there is commonly observed after the cessation of the convulsive movements a period during which the patient is comatose, a period frequently followed by natural sleep varying in duration. On the hypothesis of a sudden failure of the cerebral circulation there has been a profound though temporary disturbance of the nutrition of the whole nervous system. As the result there has been an intense motor disturbance. The sensory side of the brain has doubtless been the site of an equally severe disturbance, the earliest sign of which is sudden unconsciousness; but inasmuch as consciousness is requisite for the recognition of sensory disturbances the presence of such is of necessity masked. Yet the sensory apparatus would presumably be affected equally profoundly with the motor, so that marked exhaustion of the sensory elements, with resulting coma and sleep, is only to be expected. The headache following a fit is probably attributable to the intense venous engorgement of the cerebral membranes attending the convulsions. The post epileptic mental disturbances after major attacks are of interest; the engorgement of the cortex and the asphyxial state of the blood might reasonably account for them. Those occurring after minor attacks, however, belong to a different category. On the hypothesis under discussion they must be due to some transient disturbance of function in the grey matter, the result of the circulatory failure; a disturbance moreover manifesting itself after the attack and lasting for a variable time. The exact pathology of such conditions is, in the present state of our knowledge, impossible of determination, whatever view be taken of the pathology of epilepsy.

ON VASO-MOTOR SPASM IN THE BRAIN AS A CAUSE OF EPILEPSY.

This theory of the method of production of cerebral anæmia as the cause of epilepsy has had many adherents. If, as this paper is written to maintain, epilepsy is due to a sudden failure of the cerebral circulation, then vaso-motor spasm of the cerebral arteries, if intense enough, could certainly act as an adequate excitant of a fit. Direct demonstration of this as the excitant would obviously be very difficult, but if it can be proved that such vaso-motor activity does occur the possibility of its being concerned in the genesis of fits would be established. Until recently it was held that there was no evidence of vaso-motor activity in the cerebral vessels, but the demonstration of a copious network of nerve fibres to the cerebral blood-vessels demands a revision of the position. Harvey Cushing[6] notes that, "contrary to the positive statements of many, substances like epinephrin will blanch the pial vessels over the area of its application, as will occasionally a jet of cold water against the brain or the faradic current used for cortical stimulation." Brodie and Ferrier[7] also found that on injecting adrenalin into the basilar artery of the carefully removed brain, and measurement of the outflow from the torn sinuses, with a moderate amount of adrenalin distinct diminution of the outflow occurred, and with a larger quantity complete stoppage.

The phenomena of Raynaud's disease are also worthy of study in this connexion. The pathology of this affection is far from clear. In some cases there appears to be no doubt but that the symptoms are due to arterial disease; but it is generally admitted that vaso-constriction in the affected parts is the dominant factor. It is occasionally associated with erythromelalgia. Certain ocular and cerebral complications occasionally occur in the course of the attacks of Raynaud's disease which are readily explicable on the supposition of an active constriction of the cerebral arteries. Thus in Raynaud's "New Researches"[8] a man, aged 59 years, with attacks of local asphyxia also suffered from paroxysmal attacks of impairment of vision. Ophthalmoscopically the arteries were found to be narrowed with here and there partial diminutions which were actually seen to occur, persist for a certain time and then disappear under the observer's eyes. In another case of Raynaud's[9] a man, aged 22 years, was subject to attacks of local asphyxia which occurred when the patient went into the open air. The patient also experienced *at the moment of the commencement of the cyanosis a notable obscuration of sight* which disappeared at the time when the face and hands returned to their normal colour. Ophthalmoscopically the retinal arteries were clearly seen to be narrowed when the local asphyxia was at its height and these vessels *became widened at the moment when reaction set in.* Raynaud attributed these ocular phenomena to spasmodic contraction of the retinal arteries. Other cases of narrowing of retinal arteries with dimness of vision are on record. A most interesting case published by Thomas and Osler[10] shows the concurrence of epileptic convulsions with attacks of Raynaud's disease. It seems reasonable to assume that the convulsions were the result of vaso-constriction affecting the cerebral vessels, and it is very interesting to note that Raynaud's disease is apt to be associated with epileptic fits. In another case of Raynaud's disease recorded by Osler[11] recurrent attacks of hemiplegia and aphasia occurred, concurrently with local symptoms in the fingers and hands. The identity of the pathological process underlying the cerebral attacks and the local syncope and gangrene can hardly be called in question. The patient died comatose with an attack of gangrene of the hand. The terminal coma is interesting; the possibility of its being due to cerebral œdema must be considered. The hemiplegic attacks might be due to arterial spasm or œdema, for, as already mentioned, these two phenomena seem to be almost interchangeable in Raynaud's disease.

Migraine.—The association of epilepsy with migraine is of considerable interest. It occasionally happens that periodical attacks of migraine are replaced by ordinary epilepsy, the migraine then ceasing. In migraine there is undoubted evidence of abnormal vaso-motor action. Chilliness of the skin is common; the temporal artery on the affected side is often contracted and hard. Relief of the pain often attends

[6] Some Experimental and Clinical Observations concerning States of Increased Intra-cranial Tension, American Journal of the Medical Sciences, 1902, vol. cxxiv., p. 400.

[7] Ferrier: Harveian Oration, 1902, The Heart and Nervous System.

[8] Raynaud: On Local Asphyxia, New Sydenham Society, translation, 1888, p. 155.

[9] Raynaud: Loc. cit., p. 164.

[10] A Case of Raynaud's Disease associated with Convulsions and Hæmoglobinuria, Johns Hopkins Hospital Reports, 1891, p. 114.

[11] The Cerebral Complications of Raynaud's Disease, American Journal of the Medical Sciences, 1896, vol. cxii., p. 522.

compression of the carotid artery. This, and the fact that the pain in the head is of a throbbing character, suggests that the old explanation of a vaso-dilatation of the cerebral vessels is correct. Such a dilatation of the vessels, with resultant increased tension of the dura, &c., would be enough to account for the pain. The dilatation can, moreover, be seen. Thus, Mollendorff[12] points out that "during the attacks the background of the eye on the suffering side was of a bright scarlet red, the optic papilla red and œdematous, the arteria and vena centralis retinæ enlarged, the latter knotty and very tortuous." There is much to be said for the view that the symptoms of migraine depend upon abnormal vaso-motor activity and that the headache is the result of vaso-dilatation. Gowers[13] records the following unique cases:—

The first case was that of a girl, aged 16 years, who had been subject to periodical attacks of migraine since the age of five years. At 13½ she had an epileptic fit during sleep, and since then three others, two during sleep and one when awake. Since the first fit the headaches had been frequent, but were preceded by a brief but very definite visual aura. The interesting point is that the single epileptic fit which occurred when she was awake was preceded by precisely the same aura. An interpretation that is possible for this case is that local vaso-constriction was responsible for the premonitory visual manifestation and was succeeded by a local vaso-dilatation in the attacks of migraine, and either by a more severe and widespread cerebral vaso-constriction or by cardiac inhibition in the epileptic attack.

The second case was that of a man, aged 60 years, who had become liable to senile migraine at 55. A visual aura was succeeded by severe pain in the eyeballs, but occasionally by quite sudden loss of consciousness. Bilateral twitching was observed; on several occasions his cheek was bitten and once a motion was passed unconsciously. Before the onset he generally felt specially cold.

Migraine is also occasionally accompanied by transient aphasia. Conditions such as these suggest very strongly that abnormal vaso-motor phenomena are concerned, and transient spasm of cerebral arteries is not an unreasonable hypothesis. The evidence for the existence of vaso-motor activity in the brain is therefore partly direct and partly indirect. It is obviously a matter of great difficulty in clinical work to demonstrate such alterations, owing firstly to their evanescence and secondly to the fact that when they have subsided no evidence of their existence is left behind.

PETIT MAL.

A consideration of the cerebral phenomena attending cases of heart-block shows us that the attacks present an increasing degree of severity proportional to the length of the period of asystole. There may be merely a transient giddiness, a dazed feeling, a "turn," or the head may drop forward momentarily, the patient recovering himself immediately; or unconsciousness may be rather deeper though still transient; or a fall with slight spasm; or, finally, a severe general convulsion. Every one of these phases could be duplicated among the numerous manifestations of minor and major epilepsy. And when we compare the gradually increasing severity of the manifestations, according to the length of the period of cardiac asystole, with the phenomena of epilepsy, the resemblance is more than suggestive. Discussing the types and degrees of seizures Aldren Turner[14] remarks that "the primary types of epileptic attacks denote consecutive stages of the same series of phenomena—stages which may be arrested at any period." Among various examples given by Turner is the following: "A common form of incomplete attack is seen in fits, the aura of which is a feeling of giddiness followed by a sudden fall from loss of consciousness, but without convulsion. In these cases there are commonly found attacks of giddiness (aura), as well as complete seizures, in which the fall is followed by the usual convulsive phenomena of a major fit." In other words, the stages of severity observed are, firstly, an attack of giddiness only; secondly, an attack of giddiness followed by a fall from loss of consciousness; and, finally, the complete fit, terminating in convulsions.

A case of my own, a girl, aged 12 years, was subject to both major and minor attacks, the latter being described as attacks of giddiness. On one occasion I was feeling her pulse; she was not nervous at the time, but suddenly the pulse stopped, she gave a short cry, clutched at my coat, and sat down in a chair by which she had been standing. She did not lose consciousness. The cardiac arrest was of very short duration, probably about five seconds, and the heart then began to beat again, but the pulse was extremely feeble for a few contractions, perhaps from 15 to 20, and then rapidly increased in force so that within about half a minute from its reappearance it had regained its previous state. A few minutes later its rate was 124, a rate very common in this particular case. The above attack was a typical example of many of her minor seizures.

Here was a case of cardiac inhibition in what would be called *petit mal*. The cessation of pulse and the child's cry were, I think, simultaneous. Had the cardiac arrest been of longer duration a fully developed major attack would doubtless have occurred. Again, in Finny's case of bradycardia recorded in the first lecture the attacks varied from what were called "weak turns" to "slight fits" and "severe fits." The case was at first regarded as one of *petit mal*. It is very interesting to note that the slight fits came on with soreness or sharp feeling in the stomach and left side of the thorax, which would then extend up to the right side of the chest into the head and eyes—a definite aura, in fact. Pallor of the face occurred, the eyes would turn up to the right side, and the hands would fidget and the fingers clutch at the sheets. The patient always came out of the fit in a frightened and slightly dazed manner, and the eyes had a strained and somewhat blind look for some minutes. Here we have an aura, and if it had occurred in a case of idiopathic epilepsy it would have been regarded as typical, but it occurred in a patient whose attacks were unquestionably secondary to cerebral anæmia from heart block. Whether the aura was due to sensations derived from the peripheral vessels and heart or to cerebral changes resulting from the cessation of the circulation it is difficult to say, but there can be no doubt that it was of circulatory origin. Finally, in the severe fit in the same patient the onset was more sudden, there were convulsive movements of limbs, and the patient came out of it very confused and was dull and nervous the whole day following. Such resemblances are too close to be due to mere coincidence. It is difficult to conceive of any other explanation than an identity of cause. The cause was unquestionably sudden failure of the cerebral circulation in the case described and the conclusion seems inevitable that the fit of idiopathic epilepsy is determined in a similar way. But it cannot be claimed that cardiac inhibition occurs in all cases of minor epilepsy. Moxon quotes Hughlings Jackson's observations of the disappearance of the pulse at the onset of attacks of *petit mal*. I myself was on two occasions feeling the pulse of a boy subject to minor attacks when one supervened. No arrest occurred, nor was there any obvious change in the pulse-rate. A transient spasm of the cerebral arteries may underlie these attacks. The boy was unaware of his attacks, whereas the girl recognised them and dreaded them very much, but they are clearly cases of very different type.

INFANTILE CONVULSIONS.

The similarity between infantile convulsions and those of idiopathic epilepsy is so close that the probability of the same factor underlying the two conditions must be very considerable. The vaso-motor system of the child is much more unstable than that of the adult and the ease with which emotional disturbance and shock are produced is notorious. In a considerable number of cases the occurrence of apparently ordinary infantile convulsions is the starting point of chronic epilepsy. It seems hardly open to doubt but that the large numbers of alleged causes of infantile convulsions, such as teething, rickets, worms, acute infections, gastro-intestinal disturbance, fright, and so on, must exert their influence *viâ* some common factor. Such a factor might be, as suggested, abnormal vaso-motor and cardio-motor systems with a ready liability to attacks of acute circulatory failure, either from cardiac inhibition or from splanchnic dilatation. If this factor is brought into play once only, we have an isolated convulsion; if only a few times, we have a few convulsions. If, however, it is brought into action over and over again chronic epilepsy is the result.

The convulsions met with at the onset of acute infections in childhood are worthy of mention. Under similar conditions rigors are common in the adult, so much so that it is almost an aphorism that under such conditions a convulsion in a child is the equivalent of a rigor in an adult. I have, however, once seen a convulsion at the onset of pneumonia in a non-epileptic adult. A rigor is associated with marked cutaneous vaso-constriction with pallor and sensation of great cold. The sensitive cardiac and vaso-motor systems of the child may not be able to adjust themselves to a severe vascular crisis, and it is to be noted that the old-established

[12] See Liveing: Megrim and Sick Headache, 1873, p. 307.
[13] Borderland of Epilepsy, pp. 93 and 97.
[14] Epilepsy, 1907, p. 69.

method of cutting short convulsions in infancy by means of immersion in a warm bath by producing vaso-dilatation of the skin lowers the blood pressure.

JACKSONIAN CONVULSIONS.

Local stimulation of the cerebral cortex by the electric current, or by the presence of a cortical tumour, are both competent to produce that type of convulsive seizure commonly known as Jacksonian. The muscles first involved in the convulsive movements are those related to the area stimulated, but the spasms rapidly spread to other groups, and finally the whole musculature of the body may be involved. Several possible explanations of this march of events must be considered.

1. It might be due to a spread of the current, but if so one would expect that the spread should occur at the moment of application of the current, and, moreover, the fact that areas very remote from the one primarily stimulated are involved—for instance, the opposite side of the brain—renders such an explanation very improbable.

2. To a spread of the excitation, the view commonly held. That the area of musculature involved in the convulsive movements gradually widens is proof that the excitation spreads, but it affords no explanation as to *how* it spreads.

3. It might be due to a spreading vaso-constriction of the cerebral blood-vessels, the resulting anæmia bringing about the spread of the convulsions. I have referred above to evidence suggesting that the cerebral vaso-motor mechanism is a much more active one than is generally assumed, and I would draw attention again to Harvey Cushing's observation that faradic stimulation of the cortex can produce a paling of the grey matter.

The phenomena of Jacksonian fits dependent on tumour might be susceptible of the same explanation—viz., a spreading vaso-constriction; but it is certainly difficult to correlate this group of fits and those due to absinthe with cerebral anæmia, and the possibility that they depend on a different mechanism must be admitted.

THE SYMPTOMS FOLLOWING UPON SUDDEN AND PROLONGED CEREBRAL ANÆMIA.

So far we have considered the results following sudden and very transient cerebral anæmia. The symptoms resulting from a more prolonged arrest of the cerebral circulation are not less interesting. In the paper already referred to on death occurring during or after exploratory puncture of lung, in addition to one case of sudden death I recorded two cases in which death occurred three and five days respectively after the puncture of chest. I will briefly note the salient features of one of these two cases:—

Old pulmonary tuberculosis; chronic left basal pneumonia; exploratory puncture; syncope, convulsions, left hemiplegia; death three days later.—The patient was a male, aged 52 years, under the care of Dr. T. D. Acland at Brompton Hospital; he was admitted on June 14th and died on June 17th, 1890. On examination the physical signs were suggestive of a localised collection of fluid at the left base. A puncture was therefore made just under the angle of the scapula between the eighth and ninth ribs. The patient almost immediately passed a large quantity of urine, turned pale, and fell backwards. Respiration ceased entirely at once; the heart beat most irregularly and spasmodically and the radial pulse was not to be felt. Ether was injected subcutaneously, the interrupted current was applied, and artificial respiration was maintained for half an hour. He then had a fit in which the left arm became firmly flexed at the elbow, the thumb flexed into the palm, the fingers over the thumb, and the hand flexed at the wrist. The left leg was not affected. The eyes were deviated to the right and the pupils widely dilated. When examined a few hours later he was still unconscious; the eyes moved only to the right, and the pupils reacted very sluggishly, if at all, to light. The conjunctival reflex was present; the fundi were normal. The left arm at times moved slightly and then would become rigid and flexed; the left leg was rigid, the knee-jerk was exaggerated, and ankle-clonus was obtained with difficulty. There was also slight left-sided anæsthesia. On the morning of June 15th there was obvious left hemiplegia, with much twitching of the muscles of the left side of the thorax and abdomen. In the evening the right arm was rigid and fixed, the right leg was extended and constantly twitching; ankle-clonus was obtained on both sides—more briskly on the right. On the morning of the 16th he was still unconscious; the left hemiplegia and anæsthesia still persisted; the right arm was rigid with clonic spasms; ankle-clonus was absent and the knee-jerk could not be elicited on either side. Several convulsive seizures occurred during the evening; the arms were rigidly flexed across the chest, with twitching movements in both; there was much grinding of the teeth and clenching of the jaws; the head and eyes were moved from side to side. The left leg was somewhat rigid and there was much twitching of the foot; both knee-jerk and ankle-clonus were obtained. The right leg was very rigid with twitching of the foot; the knee-jerk was brisk. The left optic disc was apparently swollen and blurred, with one flame-coloured patch; the right cornea was hazy, and the disc looked blurred. The temperature rose to 101° F. before death, at 11 A.M. on June 17th.

Post-mortem examination.—The left lower lobe was in a condition of chronic pneumonia with localised pleural adhesion. The upper lobe and the right lung showed fibroid and calcareous changes.

Brain.—The pia mater generally was slightly opaque. The dura also was slightly thickened, but there were no morbid adhesions. The vessels at the base of the brain were healthy. The brain tissue was fairly firm, and no obvious lesion could be detected in any part.

In a case recorded by Hubert Armstrong[15] the initial symptoms, though almost equally severe, were recovered from. Several fatal cases presenting similar features are on record in which the symptoms followed pleural lavage. The causation of the cardiac arrest in these cases is of great interest. In some experiments[16] performed in conjunction with Professor Brodie at the laboratories of the Royal Colleges of Physicians and Surgeons, with the object of ascertaining which of the afferent fibres of the vagus cause inhibition of the heart when their central ends are excited, we found that the pulmonary fibres were by far the most effective in this respect. If the root of the lung be exposed in an animal and any of the pulmonary branches stimulated a typical arrest of the ventricular contraction, as shown by the blood pressure record, is produced. At the same time marked arrest of respiration occurs from excitation of the respiratory centre. The vaso-motor centre is also inhibited and produces a further fall in blood pressure, apart from that due to the cardiac inhibition, as proved by the fall in blood pressure produced in an animal whose cardio-inhibitory fibres have been paralysed by atropine. The subject has also been studied by Capps and Lewis[17] who concluded from experiments on animals with artificially induced pleurisy and from observations on the blood pressure of man during aspiration of pleural effusions that the pleural fibres of the vagus can give rise to a very active lowering of blood pressure, and that this may be brought about either from a reflex vaso-motor effect or a reflex cardiac inhibition.

SIMILAR SYMPTOMS RESULTING FROM PROLONGED CHLOROFORM SYNCOPE.

The conclusion that the cerebral manifestations in the above cases are due to prolonged cerebral anæmia is supported by the facts published by T. A. Green in his paper on Heart Massage as a Means of Restoration in Cases of Apparent Sudden Death.[18] Numerous cases of recovery after chloroform syncope as the result of massage of the heart are on record, but in some, although the heart has been induced to beat apparently normally, death has resulted after a varying period with a train of symptoms practically indistinguishable from those noted in the above cases. The fact that in these cases of chloroform syncope the heart had ceased to beat for varying periods and that therefore the cerebral circulation was for a time at a complete standstill leaves no room for doubt but that the cerebral symptoms are to be attributed to the cessation of the blood flow through the cerebral arteries. Green's first case is as follows:—

A boy, aged nine years, was being operated on for congenital umbilical fistula. During the early stage of the operation respiration stopped, "the lips became cyanosed, the skin pale, and the pupils of the eyes widely dilated and insensitive. No pulse could be felt at the wrist and on auscultation no heart sounds could be heard. The respiration continued spasmodically at intervals but finally stopped about five minutes later." All the ordinary means of restoration having failed, and 25 minutes after the cardiac stoppage, Dr. Green opened the abdomen under the left costal arch and commenced cardiac massage through the diaphragm. The apex of the heart was felt to be quite immobile and flaccid. Rhythmical compression of the heart was practised at a rate of about 70 per minute. After about two minutes a slight fluttering of the heart was observed and at the same time the pupils contracted slightly. Within a few seconds it began to beat with more than normal vigour at a rate of about 90 or 100 per minute. Artificial respiration had been continued all the time and within a very short time of the restoration of the pulse spontaneous breathing asserted itself. Consciousness never returned; tonic spasms with rigidity of the limbs and trunk developed; he broke out into severe perspirations and the pulse and respirations increased in frequency. The muscular spasms were severe enough to necessitate the administration of morphine and chloroform. Death occurred 24 hours after the heart beat and respiration had been re-established.

Green also records a second but less striking case occurring under his own observation, but death occurred one and a half hours after the heart massage had been commenced. Green reviews the literature and gives a synopsis of 40 cases of heart massage for chloroform syncope, in several of which death occurred some hours after the heart failure with symptoms similar to those observed in his cases.

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[15] Liverpool Medico-Chirurgical Journal, July, 1906, p. 110.

[16] Journal of Physiology, 1900, vol. xxvi., p. 92, On Reflex Cardiac Inhibition.

[17] J. A. Capps and D. D. Lewis: Observations upon Certain Blood Pressure Lowering Reflexes that Arise from Irritation of the Inflamed Pleura, American Journal of the Medical Sciences, 1907, vol. cxxxiv., p. 890.

[18] THE LANCET, Dec. 22nd, 1906, p. 1708.

ON THE ETIOLOGY OF ACNE VULGARIS AND ITS TREATMENT BY VACCINES.

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AN accurate conception of the etiological factors in the various bacterial diseases has of late years become increasingly important in view of the specific treatment of such diseases by means of vaccines. I here propose to set forth some investigations I have carried out on the bacteriology of acne vulgaris, which seem to show that this condition is not simply one of staphylococcic infection, but is largely due to a specific bacillary infection.

In 1893 Unna[1] first described a bacillus which he found in the lesions of acne vulgaris and to which he gave the name "acne bacillus." He did not isolate the bacillus in culture but found it constantly in sections and smears of comedones and pustules, and he concluded on histological grounds that the bacillus described by him was the probable cause not only of the comedo but also of the pustule. His three chief reasons for this belief were (1) that the bacillus was the only organism constantly present; (2) that in the comedo the bacilli were situated especially in the deeper part, whereas the other organisms present—e.g., staphylococci or bottle bacilli—were found near the surface; and (3) that the histological characters of the pustules were not such as were associated with other staphylococcic infections.

Sabouraud,[2] in 1897, described the bacillus as occurring in sebaceous plugs which can be squeezed out of seborrhœic skins. He claimed that it was the cause of oily seborrhœa and also of alopecia areata, which he considered a localised seborrhœic condition. He was the first to describe accurately the cultural properties of the microbe, which he named the "bacille de séborrhée grasse." He considered that the indurated nodules and the pustulation of acne were due to a superimposed secondary infection with staphylococci.

Gilchrist,[3] in 1899 and later in 1903, states that a bacillus which is apparently identical with that described by Unna and Sabouraud is the cause of all the lesions of acne. He recounts that he found the bacillus in all the smears of acne pustules, and in about 30 per cent. of cases he obtained pure cultures from these pustular lesions. He rechristened the organism the "bacillus acnes."

Whitfield,[4] in his book on skin diseases, concludes as the result of his investigations that the acne bacillus is the cause of the comedo, but that the pustule is the result of a secondary staphylococcic infection.

The acne bacillus, as seen in smears of comedones and pustules, is a small Gram-staining bacillus varying in length from under 1μ to 3μ or 4μ and about $\frac{1}{2}\mu$ wide. The younger forms stain evenly and darkly, but commonly the older forms show one or more deeply stained dots in their interior. These dots may be situated at the poles or they may be present along the whole length, resembling a chain of small cocci. The tenacity with which these bacilli retain Gram's stain is not nearly so marked as in the case of the staphylococcus and it is quite easy to so stain a film that the bacilli are decolourised, while the cocci are deeply stained. The arrangement of the bacilli in pus is very irregular, single bacilli are present, pairs are common, especially arranged as a V, and large irregular groups are almost invariably to be seen; the microscopical characters of the bacillus in pus films and also in smears from cultures are very similar to some of the diphtheroid bacilli one meets with in superficial ulcers and elsewhere, and it is very probable that it is to this group that the bacillus belongs. The bacilli are often found inside the pus cells, and the same film may show phagocytosis of both bacilli and cocci, indeed one may see both taken up by the same cell. In the comedo the bacilli are in general shorter and stouter, and stain evenly, while in the pustule longer forms are seen with very irregular staining.

Smears from acne pustules practically always show the presence of the specific bacillus. Often no other organism is to be found, but in many cases staphylococci are evident in greater or less numbers. Other organisms may be seen, but they are not common and cannot have much influence on the etiology of the lesion. Gilchrist found the bacilli in every one of his smears, and in only very few have I been unable to find them with the greatest ease. In six cases, however, I was unable to find any organism at all, but from two of these I was able to obtain pure cultures of the bacillus. I found only acne bacilli in 44 per cent. of the pus films I examined, acne bacilli with staphylococcus in 53 per cent., in six cases no organisms were observed, while in one case,[5] only bottle bacilli were evident. The films were stained in all cases by Gram's method, which is much the best for the demonstration of the organisms. The bacilli in most cases were very numerous and the cocci when present were usually relatively few in numbers, but in some cases (roughly about a third of those cases where both organisms were present) the cocci were very numerous and far outnumbered the bacilli.

Unfortunately the very slight power of growth of the acne bacillus on artificial media makes it very difficult to get from cultural methods a true estimate of the frequency of its occurrence. Unna, when he described the organism, had not obtained cultures, and Sabouraud cultivated it from comedones and seborrhœic lesions. Gilchrist, however, claims to have cultivated it from acne pustules in 96 cases out of 145, 44 times mixed with staphylococcus and 52 times pure. My success in obtaining pure cultures has not been so great as was Gilchrist's, for out of 132 cultures from acne pustules I could only get pure growths of the bacillus on 13 occasions. Of the other cultures 35 were sterile, 40 grew both acne bacillus and staphylococcus, and 44 grew only staphylococcus. The large number of sterile cultures is due, I believe, to the fact that the bacillus only grew with the greatest difficulty on some of the media used. In some of the cultures, although staphylococci grew yet so few colonies developed that it suggested an accidental contamination, especially as it was impracticable to efficiently sterilise the skin in some cases. The sterilisation of the skin was effected by wiping it over with pure lysol and washing this off quickly with spirit. The pustule was then pricked and the contents squeezed out and a loopful transferred to an acid agar slope and planted out *en masse*. If the pus be spread thinly over the surface of the medium no growth of the bacillus will be obtained. The same applies to subculturing the bacillus and many tubes where it is only moderately thickly planted fail to grow.

In the large deep-seated pustules two elements are to be observed in the pus. Where the contents are squeezed out, first appears an opaque semi-fluid mass, consisting chiefly of pus cells. If this is wiped away and further pressure is made a gelatinous mass is extruded consisting largely of epithelial cells and representing probably a broken-down comedo. In making my cultures I have preferred to use the purulent material for two reasons: firstly, because in investigating the causation of the pustules it seemed hardly fair to use for cultural purposes what I considered to be a degenerated comedo, and secondly, in those cases where I examined films of both constituents of the pustule I found that where staphylococci were present in the pus they were present also in the gelatinous substance. A large number of my cultures were taken also from the small superficial pustules, and these were the more productive in pure cultures of the bacillus.

The subordinate rôle played by staphylococci in some cases of acne was well illustrated in one patient who suffered from comedones and pustules on the back and shoulders. Films of these pustules I have examined over 50 times and only on a few occasions could I find any cocci present, while of eight cultures on acid agar five yielded pure cultures of the acne bacillus, two were sterile, and staphylococcus grew in only one. Of eight cultures made on ordinary agar six were sterile and on the other two a few colonies only of staphylococcus developed.

In cases where a pure culture of the bacillus was obtained no change was observed in the culture tube for about three days but an increase in the transparency of the mass of pus. Then three or four small white spots appear, representing colonies of the bacillus, and these increase slowly in size till at the end of a fortnight they may have the diameter of 1 millimetre. The fact that only three or four colonies

[1] Histopathology of the Skin.

[2] Annales de l'Institut Pasteur, 1897; Séborrhée, Acne, Calvitie, Paris, 1902.

[3] Johns Hopkins Hospital Reports, vol. ix.; Journal of Cutaneous Diseases, 1903.

[4] Skin Diseases and their Treatment, 1907.

[5] A man, aged 48 years, who had had comedones and pustules on the back for only about two years.

appear from a large loopful of pus indicates the feeble character of the growth, as films of these cases have shown that a very large number of bacilli must have been present.

It has been suggested that the reason of frequent failure to cultivate staphylococcus from an acne pustule is that in acne, as in some other coccal infections, the cocci are limited to the walls of the abscess, but this does not, I think, apply to acne, as sections reveal that in this condition the cocci are more or less scattered throughout the pus, so that when one takes a large quantity of pus it is hardly conceivable that they should be missed.

In culture the bacillus presents exactly the same appearance to that already described as being observed in pus films. Involution forms are not prominent and it retains its staining properties in a culture three months old. Definite branching forms occur, especially in broth cultures. It does not form spores. It grows best at 37° C. and growth ceases at room temperature. Sabouraud gives the thermal death point as 75° C., and he has taken advantage of this to separate it from other organisms. Only once have I been able to separate it from staphylococcus by heating to 60° for half an hour. On the other occasions I have tried this method I was unable to obtain any growth after heating. Other methods of separation have been recommended, such as soaking comedones in absolute alcohol when the cocci only are said to be killed or leaving the culture for three months when the cocci are said to have died out, but with these I have had no success. The cultural characteristics are as follows:—

Broth.—This becomes cloudy in two days, and on the sides and bottom of the tube a heavy flocculent deposit is produced. When growth ceases in about a fortnight the fluid is quite clear with a heavy deposit at the bottom. The broth is not rendered acid by the growth.

Acid agar (ordinary agar rendered faintly acid with HCl).—On the third day a small rounded colony appears, increasing slowly in size for a fortnight, when it may measure up to one millimetre. The colony remains white and much resembles that of staphylococcus albus.

Acid glycerine agar.—The growth is similar to that on acid agar but not quite so rapid. When old it becomes heaped up and darkens in colour till it is almost black.[6]

Sabouraud's special medium.—I have found the rate of growth on this much slower than on either of the two preceding solid media, but the type of growth is the same. On ordinary agar no growth occurs.[7] No growth was obtained in broth containing 1 per cent. of the various sugars.

Oleic acid glycerin agar.—This medium was suggested to me by the constant association of the bacillus with the fatty secretion of the sebaceous glands. Agar is neutralised with hydrochloric acid, 2 per cent. glycerine and 0·1 per cent. oleic acid is added, and the medium is then tubed off and sterilised in the autoclave in the usual way. Subcultures on this medium showed an appreciable growth in 24 hours, and in two days the surface was covered with a mass of white opaque colonies resembling very much those of staphylococcus albus both in size and appearance. This is by far the most suitable medium I have tried for the bacillus.

We have now to examine the serum reactions of infected persons to the acne bacillus. Gilchrist found that the serum of his patients agglutinated the bacillus in a hundred-fold dilution while his controls of healthy serum only agglutinated in a fifty-fold dilution. These results I have been unable to reproduce in their entirety. The sera were tested with five strains of the bacillus and three of the sera were derived from the same individuals from whom three strains of bacillus had been isolated. Of these three one showed no agglutinating power, one agglutinated the homologous strain in an 18-fold dilution, and the other agglutinated its own bacillus in a 54-fold dilution, and at the same time showed agglutination with one of the other strains to a less degree (six-fold dilution). Two patients who were being inoculated with a certain strain of bacillus and improving rapidly agglutinated this strain in a 32-fold dilution. The normal sera showed no agglutinating power in a four-fold dilution.

As regards the opsonic power I have tested 26 patients and have found that the opsonic index varies considerably, much more than does that of serum from healthy people. The indices obtained varied about the normal in the following manner:—

From 0·60 to 0·80 = 5	From 1·21 to 1·40 = 5
,, 0·81 ,, 1·00 = 6	,, 1·40 ,, 1·60 = 6
,, 1·01 ,, 1·20 = 4	

Thus it will be seen that there is a tendency to an increase in the production of opsonin in infected persons—a condition frequently met with in other infections—e.g., gonococcus, bacillus coli, &c.

The opsonic indices of seven apparently healthy people were done in all 42 times, and these may be tabulated as follows:—

Under 0·80 = 1	1·01 to 1·10 = 15
0·81 to 0·90 = 6	1·11 ,, 1·20 = 6
0·91 ,, 1·00 = 13	Over 1·20 = 1

As regards the pathogenicity of the bacillus to the lower animals Gilchrist found that it killed mice and guinea-pigs in one or two weeks and from the pus at the seat of inoculation and from the heart's blood he obtained pure cultures of the bacillus. My observations in this connexion are limited to the inoculation of week-old broth cultures of two strains of bacillus into two guinea pigs, neither of which suffered any inconvenience.

The next question to be examined was the possibility or otherwise of reproducing the disease by inoculation of the bacillus directly into the skin of a susceptible individual. Last November I rubbed vigorously into the skin of the forearm of a person suffering from acne a week-old broth culture of an acne bacillus freshly isolated from him. At the same time the same culture was vigorously rubbed into the arm of one of my colleagues who has never suffered from acne. In the latter case only a negative result was obtained but in the case of the susceptible individual after two days several of the hair follicles of the area rubbed over became inflamed and in five days definite pustules formed which persisted a week, then began to dry up, although the lesions did not disappear for over a month. On the fifth day and again on the twelfth day films of these pustules were examined and no organisms other than the acne bacillus could be discovered. This, then, would seem to show that this bacillus is capable of producing a pustular folliculitis in a susceptible person.

Of the other organisms present in acne I need only mention two—viz., the staphylococcus and the bottle bacillus. The former is present in many comedones as well as in pustules and sometimes in considerable numbers; indeed, Sabouraud in his earlier researches had great difficulty in obtaining culture from these comedones of the acne bacillus free from staphylococci. Staphylococcus aureus seems to be uncommon in these lesions. I have only grown it on two occasions, once from a large pustule—almost a furuncle—following an excessive dose of staphylococcus vaccine, and again in what seemed an ordinary slight case of pustular acne. All my other staphylococcic cultures were of the white variety and only very few of those tested liquefied gelatin. Of the others there were two main types—one very opaque and white, while the other was greyish semi-transparent, having a very flat colony with irregular margin which spreads to a considerable size over the agar.

The bottle bacillus is a large organism shaped something like a bottle and presenting an appearance very like a yeast. I have not succeeded in obtaining cultures. It occurs in the more superficial part of the comedo and is to be found constantly also in dry seborrhœic conditions of the scalp or elsewhere where its presence may be of great diagnostic value.

Before going on to the question of the treatment of acne I would like to direct attention to the evidence that the acne bacillus may be and frequently is the cause of pustulation. As stated above, Unna and Gilchrist thought that the pustulation was of bacillary origin, while Sabouraud, and more recently Whitfield, believed it to be a secondary coccal infection. The last observer gives as his reasons for holding to the coccal origin of the pustules (1) that staphylococci can always be cultivated from the pus; (2) that films of pus often show cocci ingested by leucocytes, thus proving that they are not merely a surface contamination; and (3) that patients with pustular acne have a low opsonic index to staphylococcus. As regards the first reason the cultural evidence detailed in an earlier part of the paper would seem to indicate that there is a fairly large percentage of cases

[6] This darkening on glycerine media may be due to the formation of the same substances which cause the blackening of the free end of the comedo

[7] Since writing the above I have succeeded in obtaining from the contents of a superficial culture planted on ordinary agar after 14 days' incubation four small colonies of bacilli presenting appearances similar in all respects to the acne bacillus.

where one obtains either no growth at all from the pustules or a growth of the acne bacillus. This bacillus one can practically always see in films of pus and it is probably only because of its very feeble powers of reproduction on artificial media that one does not obtain a culture every time. With regard to the ingestion of the cocci by leucocytes if this be a proof that they are exerting a pathogenic action, then much more does this apply to the acne bacillus, for in pus films one finds bacilli inside the pus cells with much greater frequency than one does cocci. Sometimes, as I indicated above, one finds both phagocyted in the same film or even both inside the same pus corpuscle. The third reason adduced—that of the low opsonic index—applies, I think, only to those individuals in whom there is a staphylococcic as well as a bacillary infection. I have shown, however, that these patients also exhibit abnormal opsonic indices to the acne bacillus.

Having now treated in a more or less complete manner of these objections I would adduce the following contentions in favour of the pyogenic nature of the bacillus. 1. It is constantly present in the pus as shown by examination of films. 2. It is frequently the only organism present in pus. 3. It can frequently be recovered from the pus in pure culture. 4. Inoculated into the skin of a susceptible individual it produced a pustular folliculitis and examination of the pus showed no other organism to be present. 5. Inoculated into animals it produces an abscess at the seat of inoculation from which the bacillus has been recovered in pure culture. (Gilchrist.) 6. The serum of patients affected with acne agglutinates the bacillus in some cases. 7. The opsonic indices of patients to the acne bacillus vary considerably from normal. 8. Large doses of a vaccine derived from the acne bacillus have, as we shall see later in connexion with the treatment, induced a marked negative phase characterised by the appearance of fresh pustules from which the bacillus has been recovered in pure culture. 9. A vaccine of this organism has a marked beneficial effect on the condition. 10. When a patient has a high opsonic index to the bacillus his condition improves, but when the opsonic index is low fresh pustules appear.

We now come to the question of the treatment of acne vulgaris by means of bacterial vaccines. I think we may take it is definitely proved now that in a localised infection, when one inoculates the patient with appropriate doses of a carefully prepared vaccine derived from the infecting organism, one obtains a definite beneficial effect. This has been shown by very many observers since Sir Almroth Wright first directed attention to the curative properties of these vaccines, and taking this broad principle as the basis for our work we would expect, from what I have advanced as to the bacteriology of acne, that a vaccine of only one organism, whether it be staphylococcus or acne bacillus, would not be sufficient in all cases. The treatment of acne by means of staphylococcus vaccine has been repeatedly discussed by Sir Almroth Wright[8] and others, and I here propose to deal mainly with the treatment by means of a vaccine of the acne bacillus alone or in combination with staphylococcus.

[8] THE LANCET, March 29th, 1902, p. 874; Brit. Med. Jour., 1904.

Very frequently in treating a case of acne with staphylococcus vaccine it is found that there is a definite improvement for a time then the condition remains stationary in spite of any modification in the dose or character of the staphylococcic vaccine. This is exactly what would be expected from a consideration of the bacteriology, as it is only in a certain number of cases that the staphylococcus is present, and even when present it is not responsible for the whole condition. We can, therefore, divide cases of acne vulgaris for therapeutical purposes into three classes. The first will consist of those cases in which the comedo is the dominant feature, with, also, some of those which have progressed further to the indurated and pustular stages. In this class of case the acne bacillus is the offending agent and the staphylococcus if present at all is playing a subordinate rôle. This class, therefore, may be treated with a vaccine of acne bacillus alone. The second class consists of a large number of the indurated and pustular varieties where both staphylococcus and the acne bacillus appear to be playing an active part in the causation of the inflammatory process. The therapeutic requirements of this class are best met with a mixed vaccine of staphylococcus and acne bacillus. The third class consist of those less common cases where there is a more acute inflammation, tending almost towards a furuncular form. Here microscopical examination will show that the staphylococcus is the chief offender and treatment should be directed at first against this factor, not forgetting, however, that at the basis of the condition there is an acne bacillus infection.

I would here lay stress on the importance of the microscopical examination of smears of the pustules before vaccine treatment is embarked on in order that some certainty may be arrived at as to which class the patient belongs.

The vaccine used was derived from a three weeks' old culture on acid agar and was made and standardised in the usual way. In two cases opsonic estimations were made almost daily over a period of six weeks, and the charts show that the index varied exactly as it does with inoculations of other organisms. One of these charts relating to a case of mild pustular acne is here reproduced. A dose of 10,000,000 acne bacilli caused a marked negative phase followed by a rise and a subsequent drop. Smaller doses of 6,000,000 showed no negative phase. The clinical condition showed a very marked correlation with the index—i.e., when there was a low index fresh spots appeared and when the index rose the condition improved. This very close correlation rendered the continuance of the opsonic estimations unnecessary for guidance in treatment, the clinical condition affording a good and much more easily observed guide. I may mention here that this patient, who exhibited a marked negative phase with 10,000,000 bacilli, had previously had administered a dose of 50,000,000 which was followed by a very luxuriant crop of pustules, and from these pustules pure cultures of the acne bacillus were obtained.

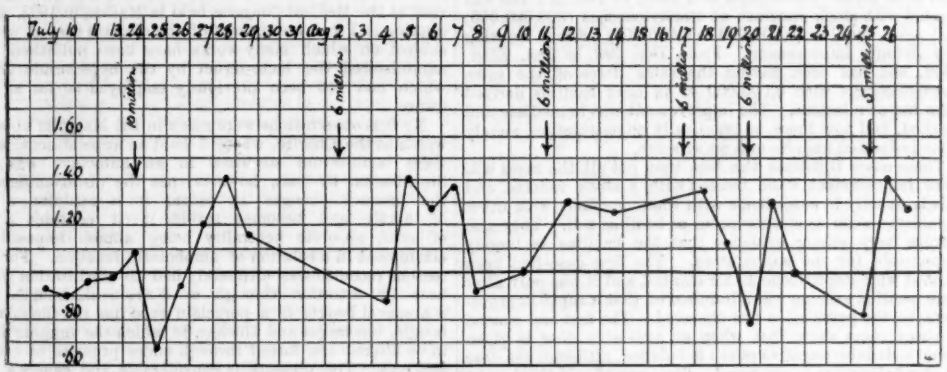

Chart showing the effect on the opsonic index to the acne bacillus produced by inoculations with a vaccine of that organism.

The stock vaccine in use in this laboratory was derived from a pustule on the face of a woman, aged about 25 years, who had had very bad pustular acne on the face and shoulders for many years. She had been having staphylococcic inoculations at intervals of ten days for about a year.

The condition had improved somewhat at first but for several months had been almost stationary. She then had the same stock staphylococcus vaccine, combined with 20,000,000 of her own acne bacillus vaccine. This was followed by the appearance of fresh pustules and the aggravation of existing ones. Ten days afterwards another inoculation was given of staphylococcus, with this time only 10,000,000 acne bacillus, and inoculations were given regularly of the same doses of the same staphylococcic vaccine as she had previously been having, combined with doses of acne bacillus varying from 5,000,000 to 10,000,000 and in three months almost all traces of acne had disappeared. Later she discontinued treatment and a slight relapse occurred, but this has again improved with the mixed staphylococcic and acne bacillus vaccine.

Another case was that of a girl, about 26 years of age, who had had very bad pustular acne on the face for several years. The face was covered with deep indolent pustules; a film of pus showed no organisms; and of cultures from four pustules two were sterile and two showed a scanty growth of staphylococcus. From July till the end of September last year she had doses of mixed stock staphylococcus and acne bacillus vaccines in doses of 100,000,000 to 250,000,000 of the former and from 5,000,000 to 20,000,000 of the latter, with hardly any improvement. It is worthy of note that while a dose of 250,000,000 staphylococci + 10,000,000 acne bacilli produced hardly any negative phase, the next dose of 250,000,000 staphylococci + 20,000,000 bacilli was followed by a marked exacerbation of the pustulation, indicating the importance of the bacillus in the causation of these lesions. From the end of September till the beginning of January she had the same doses of staphylococcus with doses of from 5,000,000 to 10,000,000 of an acne bacillus obtained in pure culture from her own pustules, and from the very first her condition improved till on Jan. 7th of this year all suppuration had disappeared from the face with the exception of one very small superficial pustule.

Another case was that of a girl, aged 20 years, who had had very bad facial acne for five years. Films of pus showed many acne bacilli and in some pustules staphylococci were also to be seen. From Sept. 3rd, 1908, to Dec. 3rd she was treated with stock vaccines of staphylococcus (200,000,000) and acne bacillus (5,000,000 to 8,000,000) without showing any definite improvement. From Dec. 3rd to Jan. 22nd, 1909, she has been having the same doses of the same staphylococcus with 8,000,000 of an acne bacillus derived from her own lesions. The improvement was immediate and marked, and now there is practically no pustulation, merely some indurated nodules and many scars.

These cases illustrate the fact that not all the cases will show improvement when treated with a stock vaccine, and this is exactly in accordance with what one finds with other organisms, such as streptococcus or bacillus coli. They also furnish very strong evidence that the bacillus is largely responsible for the suppuration. The first case had been treated with staphylococcus for months, and it was only after acne bacillus vaccine was administered that a rapid improvement in the pustulation was observed. The first and second of these cases show that when an excessive dose is given them a definite negative phase is induced, although the dose of staphylococcus is unaltered. The second and third cases show that although the stock vaccine of staphylococcus combined with the stock vaccines of acne bacillus was of little avail, yet the same doses of the same stock vaccine of staphylococcus with an autogenous acne bacillus vaccine rapidly got rid of the suppuration.

While these cases illustrate the fact that in some cases an autogenous vaccine of acne bacillus is necessary, yet experience has shown that in the vast majority of cases great improvement has been induced by the inoculation of a stock vaccine combined with staphylococcus if an examination of films has revealed that that organism is present. The dose used has varied from 4,000,000 to 10,000,000 and the interval between inoculations from one to two weeks. The guide to treatment has been the appearance of fresh lesions either during the period of low resistance following the positive phase when too long an interval has been allowed to elapse or in the next two or three days after an inoculation indicating that too large a dose has been administered. By watching these signs and working the dose up till it just fails to show any "negative phase" clinically one obtains the maximum benefit from the vaccine. In this way a large number of cases of acne in all its stages have been greatly improved and in a fair proportion the lesions have totally disappeared. On cessation of treatment in several instances, especially in some cases where attendance ceased before the condition had entirely disappeared, there was a recrudescence of the disease, which, however, rapidly gave way to subsequent treatment.

It is interesting in view of Sabouraud's contention that this bacillus is the cause of seborrhœa and of alopecia areata to note the effect of treatment on a patient—a woman aged 25 years—who suffered from comedones on the face and a rapid loss of hair which had been persisting for some months in spite of ordinary treatment. In October last she was first inoculated with the acne bacillus and from the first week after this the loss of hair practically ceased. Since that time she has had inoculations every 7 or 14 days, and there has been no return of the loss of hair. One cannot argue from one case, but it is possible that if, as Sabouraud maintains, seborrhœa of the scalp is due to this bacillus and the loss of hair is due to seborrhœa, then inoculations with the bacillus may prove of benefit in checking this loss.

THE PHYSIOLOGICAL AND THERAPEUTICAL PROPERTIES OF THE SERUM OF MILK (LACTO-SERUM).[1]

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(*Specially Translated for* THE LANCET.)

WHEN the casein of milk is separated by coagulation the residue is a serous liquid commonly called whey. If the coagulation has been produced by means of an acid the whey contains a certain amount of albuminoid substances, but if rennet (*ie ferment lab*), assisted in its action by a salt of calcium, has been used, only traces of such substances remain. The present investigation was commenced in the year 1902 and the first results were made known in a preliminary note read at the Medical Congress held in Madrid in 1903. In conducting it I took no account of the dietetic uses of whey—a subject on which many works have been published, and I administered the lacto-serum by the hypodermic method which had not been previously employed so far as I am aware.

My first observations were made in Dr. Maygrier's obstetric wards at the Charité, where I held an appointment, and in them lacto-serum sterilised in an autoclave was used. Sterilisation by heat, however, has the disadvantages that the product changes in colour if it contains a trace of alkali and becomes turbid if it contains a trace of acid, absolute neutrality being almost impossible of attainment in a solution of amphoteric reaction. For these reasons recourse was ultimately had to sterilisation without heat by filtration through a d'Arsonval bougie. The d'Arsonval bougie is a porcelain tube like the Chamberland bougie, but larger and thicker, in which the organic liquids to be filtered are forced through under pressure of carbonic acid gas. The pressure is considerable and causes a filtration of thick albuminoid liquids which will not traverse ordinary filters. The lacto-serum, whenever it is well prepared and a little patience is used, can be filtered through ordinary bougie filters. The lacto-serum used by me is derived from cow's milk; it is a clear fluid, almost tasteless, and practically isotonic; it contains the mineral salts of the milk, occasional traces of albumin varying with the method of preparation, and more especially the natural ferments of the milk which are destroyed by sterilisation with heat but remain in solution after filtration without heat as above described. This fluid possesses some very interesting properties. As regards its saline constituents it behaves like a solution in which chloride of sodium, milk sugar, and phosphates of the alkalies and alkaline earths predominate. As regards its ferments, it has a resemblance to extracts of animal organs and to animal serums; like them, it contains certain oxydases, the importance of which is only beginning to be known and which impart to all

[1] Memoir communicated to the Paris Academy of Medicine on April 9th, 1909.

serums several properties in common. This last and very remarkable fact was suspected by Pasteur and has been confirmed by the successful employment in different diseases of a serum such as that of Dr. Roux, which has produced such good effects in diphtheria that it deserves to be called a specific.

The ferments contained in milk have been the subject of many investigations. Some of them, such as pepsin, trypsin, lipase, the glycolytic ferment, the oxydases, and the anaëro-oxydases, are common to the milk of all the mammalia, while others, such as the amylolytic ferment and the ferment which attacks salol, are present in human milk but not in that of the cow. The importance of these ferments from the dietetic point of view has given rise to long discussions among those who advocate respectively either raw milk (*lait cru*) or sterilised milk for the feeding of new-born infants. The practical results observed in the use of sterilised milk deprived of its ferments seem to show that the latter are of only secondary importance when the milk is introduced into the digestive tract. The case, is however, quite different when the milk is converted into lacto-serum which is injected under the skin, the specific action of the ferments being now very pronounced. If the lacto-serum has been sterilised by heat there may be some increase in the amount of urine, but otherwise the effects are not very different from those of "artificial serum," whilst the injection of lacto-serum sterilised without heat is followed by some novel consequences. At first there is a slight rise of temperature coming on soon after the injection and lasting only a few hours. In the next place there is an increase in the polynuclear leucocytes, while there is often a remarkable increase in the excretion of uric acid, especially in febrile cases; finally, as a distinctive and peculiar phenomenon—for those just enumerated belong in common to almost all serums—there is a notable lowering (or what might more correctly be called a "regularisation") of the blood pressure in the arteries and capillaries. This phenomenon is novel and could not have been foreseen, because analysis of the lacto-serum does not reveal the presence of any substance capable of producing such an effect. Neither the very small amount of milk sugar contained in the 10 cubic centimetres which I gave as a dose, nor the trifling increase in the amount of urine which might be attributed to it, could be considered as the cause. There is, however, no doubt as to the fact, for a considerable number of observations both on the human subject and on the lower animals have enabled me to prove that when the blood pressure is increased, either from pathological conditions or artificially, injections of lacto-serum will cause the pressure to fall to normal more or less quickly and to remain at that level for a time. In cases of hypotension the blood pressure is not further reduced but has rather a slight tendency to rise. A case observed in the wards of Professor Robin, the patient being a female suffering from tuberculosis whose blood pressure measured by Verdin's apparatus fell to practically seven millimetres of mercury, is absolutely conclusive in this respect.

In some experiments made in the laboratory of Professor Richet in July, 1902, the arterial pressure in a dog was artificially raised by means of extract of suprarenal capsules, this being followed by an injection of cocaine for the purpose of prolonging the artificial rise of pressure which would otherwise be of short duration. I then found that the injection of lacto-serum brought down the pressure to the normal either quickly or at least in a much shorter time than would have been required for a spontaneous return to the normal without the administration of lacto-serum. Similar results were obtained in the human subject. In a patient whose radial artery showed a blood pressure reckoned in millimetres of mercury equivalent to 24, an injection of lacto-serum caused it to fall to 21, and sometimes to 20, in from three to four hours, the pressure rising again to 22 at the end of 24 hours. By means of a series of daily injections the pressure was brought down to the normal amount in six, eight, or ten days according to the nature of the cases, and a still more curious fact was that it remained normal for a month or more, whilst in one instance it remained normal for five months. Some cases resisted the treatment, but they were very few in number. It must also be remembered that the true cause of arterial hypertension is not as yet completely known, neither is it certain that the cause is always the same.

The therapeutical applications to which my inquiries led me have been as follows:—

1. *Puerperal infections.*—I made observations on four cases of this kind in the wards of which Dr. Maygrier has charge and on two cases in private practice. The results were variable, being sometimes successful and well marked, but at other times either uncertain or of short duration.

2. *Post-operative peritonitis.*—Three cases occurring in private practice were observed. The treatment was unsuccessful; there was an evident prolongation of the patients' resistance to the disease, but a fatal issue was not averted. In this condition the arterial tension is always low.

3. *Typhoid fever.*—Cases of this disease were observed in the wards under the charge of Professor Robin. In one there was a remarkable result, but of doubtful interpretation; in three cases there was no result.

4. *Pneumonia.*—Observations were made on 12 patients in the wards under the charge of Professor Robin and Dr. Maygrier. The results were in every way remarkable and constant. Defervescence always followed the second or even the first injection, sometimes on the fourth day of the treatment, the defervescence being as usual accompanied by an abundant excretion of uric acid. It must, however, be admitted that in pneumonia many kinds of serum give the same results as above described, and that the "metallic ferments" which came into prominence after my researches had been commenced produce even more remarkable effects. This merely proves the similarity of action of lacto-serum and of these ferments, a similarity on which Professor Robin has laid great stress in his important work on this subject.

5. *Arterial hypertension in arterio-sclerosis.*—It is in this condition that lacto-serum appears to me to find its most interesting application. My observations, 63 in number, were made upon patients in the wards under the charge of Professor Robin, M. Huchard, M. Oulmont, and M. Vaquez, as well as in private practice; ten have been described in communications received by me from brother practitioners. In one patient who was under the care of M. Vaquez and who received only a single injection the treatment was a complete failure. In almost all the others the fall of the blood pressure was constant and occurred under the conditions already detailed. Simultaneously with this fall of pressure there was a mitigation of the subjective symptoms such as headache, insomnia, general oppression, and shortness of breath on exertion. Every time that the treatment was applied according to the rules suggested by experience and continued for a sufficient period the results were surprising. There were at least 26 cases which I was able to keep under observation as private patients for a longer time than the hospital patients, because all the latter left the hospital as soon as they felt themselves better; these 26 cases showed a general improvement so well maintained as to amount to recovery, provided that from time to time the injections are repeated for several days as soon as signs of hypertension recur. Under these circumstances the patient is often free from symptoms for several months. All these patients resumed their ordinary course of life which had been interrupted by the illness, and some in opposition to my advice even discontinued the special *régime* which had been prescribed for them.

Several of the patients whom I treated had in their urine albumin, the amount of which was almost always slightly increased during the first days of the treatment. If there is no renal lesion and the albuminuria depends on hypertension only it disappears quickly and permanently in patients who persevere with the treatment even though they discontinue the *régime* prescribed for them, but if there are renal lesions the albuminuria after the initial increase returns to its original amount. This supplies a convenient method of distinguishing between the albuminuria of hypertension and true organic albuminuria, serving in fact nearly the same purpose as the use of nitrites.

My ordinary method of administration is to give a daily injection of 10 cubic centimetres and to repeat it in 24 hours if the effect has not been sufficient until the blood pressure has fallen to normal. After this the injections are continued for four or five days longer, and then a weekly injection is given for a month, with more frequent repetitions if the pressure rises. When the pressure remains normal a monthly injection is given for three months. The injections are not repeated unless the symptoms of hypertension recur. The

injection is made into the muscles of the thigh or of the gluteal region, or else under the skin of the flanks. Usually it is not painful; when pain is felt it shows that the serum has not been made isotonic in the process of preparation. Sometimes a little erythema is seen at the site of the puncture. No abscess has occurred in a total of more than 1000 injections.

The preparation of the lacto-serum is very simple. Milk as fresh as possible is warmed to 30° C. and rapidly coagulated by some drops of hydrochloric acid. The curd is removed by filtration through fine muslin and the liquid, after exact neutralisation with carbonate of sodium, is filtered through paper (*papier Chardin*); the final stage is filtration through a d'Arsonval bougie under pressure of carbonic acid gas. This filtration may be very tedious, for colloid substances liable to block the pores of the filter are sometimes present. This process introduces into the lacto-serum a little chloride of sodium which raises the natural low tonicity (*hypotonie naturelle*) of the liquid; it also introduces traces of peptone, appears to reduce somewhat the richness of the serum in oxydases, and leaves a small quantity of albuminoid substances which hinder filtration. Coagulation of the milk by means of some drops of rennet (*présure*), sterilised by filtration and with its action strengthened by a trace of chloride of calcium, produces a better curd, leaves no albuminous substances in the whey, does not form peptone, interferes less with the oxydases, and secures a more rapid filtration, but it requires the liquid to be made isotonic by the addition of a little chloride of sodium in order that the injection may not be painful. The lacto-serum is preserved in flasks (*ampoules*) hermetically sealed after being filled with carbonic acid gas. Under these conditions it may retain its activity for one month, two months, or even longer.

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THE TREATMENT OF GRAVES'S DISEASE WITH THE MILK OF THYROIDLESS GOATS.

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FIFTEEN months ago a communication on this subject was made to THE LANCET,[1] and three cases were recorded. Of the first of these nothing more has been heard; the second case was again treated with the milk during the whole of last summer down to the end of September, and the patient's medical attendant reports:—

> I last saw her on Nov. 10th, 1908, when she expressed herself as feeling well and able to do much more than she had been able to do previously; her pulse was 78 and her weight was 10 stones 1 pound (at one time her weight went down to 7 stones 9 pounds and her pulse could scarcely be counted, it was so rapid).

In the third case the patient continued to take the milk until Dec. 30th, 1907, when the supply failed. After this she was not quite so well, the pulse-rate increasing and there being some return of the œdema in the legs. Another goat came in milk in March, 1908, and the patient took the milk all last summer. Although the large goitre remained the same, yet the patient had very few subjective symptoms and but slight acceleration of pulse. The exophthalmos remained stationary. The supply of milk failed at the end of September, 1908, and the patient went to the seaside. Here she had a bad attack of gastro-intestinal disturbance with persistent vomiting and diarrhœa; since then she has been mainly in bed and subject to occasional severe attacks of palpitation and choking sensations at night. During the past two months the patient has been treated with dried blood from a thyroidless goat, five grains three times a day, but without improvement. Although milk is again available it cannot be taken on account of the gastric symptoms.

The following seven cases were under treatment at the Prince of Wales's Hospital, Tottenham, and I am indebted to the physicians under whose care they were for permission to publish them.

CASE 4.—The patient was 19 years of age and unmarried. Her illness had commenced four years ago after some domestic trouble. The symptoms then were pain in the cardiac region and fulness of the throat and these symptoms continued. On admission to hospital there was found to be an obvious enlargement of the thyroid gland and the pulse-rate was 104. There was slight prominence of the eyes, slight tremors in the hands, and occasional attacks of a sense of suffocation in the chest, the patient's weight being 6 stones 12¾ pounds. She was treated with milk from a thyroidless goat and strophanthus and she improved and was able to leave the hospital in 41 days, having gained 5¾ pounds in weight. The pulse-rate remained about the same.

CASE 5.—The patient was a married woman, aged 36 years. The illness had commenced four months before attendance with marked prominence of the eyes, neuralgia in the forehead and the face, enlargement of the thyroid, difficulty in swallowing, palpitation, shortness of breath, and increased appetite. When first seen there were present pronounced exophthalmos, enlargement of the thyroid, and marked tremors. At first the patient was treated as an out-patient with rodagen and under this treatment the exophthalmos diminished. After a month she was admitted to the hospital and was treated with milk from a thyroidless goat, about a pint and a half a day. In six weeks she was much improved and was able to go to the seaside, where she gained 11 pounds in weight, but the exophthalmos remained the same. On her return she again took the milk and continued to improve till December, when the supply failed. Ten days later the patient was much worse; she was weaker and more tremulous, and was suffering also from shortness of breath and from attacks of cardiac pain; she had not had any of these attacks since the early days of her illness. She was readmitted to hospital and was treated with thyroidectin and she has much improved.

CASE 6.—The patient was a married woman, aged 36 years, and the mother of six children. The illness had commenced four years ago during pregnancy. On admission to hospital there were found to be severe palpitation, œdema of the legs, nervousness, with tremors in the hands, and enlargement of the thyroid, but there was no exophthalmos. The patient was treated with milk from a thyroidless goat and she improved, but she left too soon, to look after her children.

CASE 7.—The patient was 20 years of age and unmarried. She had a large soft goitre giving a sense of pulsation and a well-marked thrill. There was distinct exophthalmos, and the pulse was 120; slight tremors with occasional attacks of shortness of breath were present. The patient was treated with milk from a thyroidless goat and she quickly became much better, leaving the hospital in 39 days.

CASE 8.—The patient, aged 20 years, unmarried, had had appendicitis six months ago, for which she was operated upon. Three months later there were symptoms of gastric ulcer with vomiting of blood and the present symptoms followed. On admission to hospital the patient was markedly pale and the pulse was 144; the thyroid gland was felt on examination to be enlarged and there was shortness of breath, but no exophthalmos was present. The treatment consisted of milk from a thyroidless goat and under it the patient improved greatly.

CASE 9.—The patient was 17 years of age and unmarried. On admission there was distinct enlargement of the thyroid gland, with tremors of the hands and anæmia, but there was no exophthalmos. This was a mild case. The patient quickly improved under the milk treatment, only remaining in hospital 20 days. The pulse on admission was 104 and on leaving it was 80.

CASE 10.—The patient was a married woman, aged 29 years, and the mother of four children. On admission to hospital there were present marked exophthalmos, nervousness, with constant movement of some part of the body, headache and giddiness, enlargement of the thyroid, and a systolic murmur at the apex. Treatment with milk from a thyroidless goat brought about an improvement, but the patient left too soon, in order to look after her children. 15 months later she attended the out-patient department for a time with all the symptoms of the disease well marked.

CASE 11.—Treated in the country. The patient was a married woman, aged 32 years, who had suffered from the disease for four years. The symptoms were palpitation, a pulse-rate of 130, fulness of the throat, with pulsation of the thyroid gland, and slight exophthalmos. She was treated

[1] THE LANCET, Jan. 25th, 1908, p. 227.

with the milk of a thyroidless goat and in three weeks' time was better.

Some of the milk was sent to St. Thomas's Hospital, where Dr. Hector W. G. Mackenzie kindly tried it on the following four cases.

CASE 12.—The patient was an unmarried woman, aged 21 years. The illness had commenced 17 months ago with swollen neck, tremors, and prominence of the eyes. On admission to hospital the patient was very thin and considerable exophthalmos was present. The thyroid gland was slightly enlarged; there were tremors in the hands, the pulse-rate was 160, and the patient's weight was 5 stones 8 pounds. She was ordered 35 ounces of the milk a day and she gradually gained in strength and in weight, the gain in the latter respect being 1 stone 2 pounds.

CASE 13.—The patient, aged 20 years, was unmarried. Two years previously to coming for treatment she had been an in-patient for eight months with marked exophthalmos, tremors of the hands, and a systolic murmur. She was treated with rodagen and x rays to the thyroid and she got much better and gained 2 stones in weight. She was kept under observation and was readmitted a year later. All the symptoms of Graves's disease were well marked. She was treated with the milk from thyroidless goats and improved, gaining several pounds in weight and the pulse-rate falling.

CASE 14.—The patient was 20 years of age and unmarried. On admission there was enlargement of the thyroid gland with a thrill and the pulse-rate was 120. There were tremors in the hands but no exophthalmos was present. She was treated with milk from a thyroidless goat, about a pint a day. She steadily improved, leaving in 34 days, and having gained 1 stone 3 pounds in weight, the hands being much less tremulous and the pulse-rate remaining about the same.

CASE 15.—The patient, an unmarried woman, aged 42 years, had suffered from Graves's disease for 14 years. Two years ago she had been an in-patient for ten months and had improved somewhat, but became worse again after returning home. She was readmitted and was treated with milk from thyroidless goats, but did not improve under the treatment.

It is satisfactory that none of the patients treated have so far died. It is not always so. On looking through the reports of one large hospital it is seen that there were in ten years five deaths, and at another hospital in the same time 11 deaths. Only two of the cases did not improve under the treatment (Cases 3 and 15), but the patient in Case 3 did improve while the milk could be given, and the condition in Case 15 was of long standing. It is, of course, possible that the improvement may have been due wholly, as no doubt it was in part, to the rest and good diet obtained in hospital, but the patient in Case 1 continued to lose ground under these conditions till the milk was given. Cases 2 and 11 were treated wholly at home, and in Cases 3 and 5 the patients became worse when the milk had to be stopped. Further, Dr. A. Gordon Gullan has reported good results from rodagen and thyroidectin.[2]

As the anti-body in the milk must be derived from the blood serum it would seem better to administer the dried serum and corpuscles from a thyroidless animal. But there is one point in favour of the milk: ordinary cow's milk must contain a certain amount of thyroid secretion, therefore we have either to give this or to cut ourselves off from an article of diet valuable for invalids: the use of milk from thyroidless animals relieves us from this dilemma. The reduction in the amount of thyroid secretion in the patient can also be brought about by the excision of part of the enlarged thyroid, and several surgeons have recently reported successful cases of this treatment. The operation has, however, been attended with a heavy mortality in the past; but in one case in which the patient was seriously ill with the usual symptoms, including paroxysmal attacks of palpitation and dyspnœa, I removed the major part of the goitre and the patient was speedily and greatly benefited.[3] If an operation is to be undertaken it should not be delayed until the patient is materially weakened by the disease. It is true that a certain number of cases recover under medical treatment, but what we have to avoid is not so much unnecessary operations as unnecessary deaths. Even if operation is the best treatment for the majority of cases we still require a medical treatment for the cases which are too mild for operation, for those patients who are too ill for operation, for those who decline operation, and for those cases which have been operated upon but which have not been completely cured.

Devonshire-place, W.

[2] THE LANCET, Sept. 5th, 1908, p. 708.
[3] Journal of Pathology and Bacteriology, vol. iii., 1896.

RADIOGRAPHY AS AN AID TO THE DIAGNOSIS OF DISEASES AND INJURIES OF THE SKULL AND BRAIN.

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WIDE as are the applications of the Roentgen rays in the diagnosis of disease no more interesting field of investigation exists than that which comprises the subject stated above. This method of demonstration in relation to these diseases and injuries is of great importance. A radiographer should be a trained clinical observer and not merely a taker of radiographs, for on the correct interpretation of what one actually sees depends very largely the value of diagnosis by radiography. When Professor Roentgen first announced his great discovery medical men were eager to avail themselves of the advantages of this new aid to diagnosis. It was soon found that the Roentgen rays could be applied to all parts of the body and early efforts in the direction of cranial radiography showed that in the case of foreign bodies in the walls of the skull and cranial cavity the value of the new aid to diagnosis was great. Improved methods of application and instrumentation led to more accurate results until at the present time it is possible to show many lesions and injuries in the skull and its adjacent parts and in the brain itself. The position of foreign bodies can be clearly shown, fractures of the skull can be located, abscess of the brain should give a definite shadow, and the correct location and size may be shown in the skiagram. Tumours of the brain are also capable of being demonstrated; those which are attached to or have their origin in the bony walls or periosteum of the skull are readily recognised. The nature and consistence of cranial tumours determine the degree of the shadow which they are likely to give. A tumour having the same consistence as the brain tissue will not give a definite shadow, but a tumour of greater density than brain tissue should be capable of demonstration. In radiography of other parts of the body one has to show bones in relation to soft parts and, as a rule, this is comparatively easy, but in cranial radiography there has to be overcome the difficulty of dealing with a bony case consisting of two more or less thick walls with a space of several inches between. The early radiographs show merely an outline of the skull as a whole, with shadows of varying density which might or might not be capable of interpretation. Later efforts have been more successful in showing the various component parts of the bony skull and the contents of the cranial cavity.

In order to get a good radiograph of the skull and its contents it is necessary to use a fairly powerful coil and to vary the exposure according to the amount of current used. Most of the coils in use at the present time give a large output of energy and if one can get a tube with a sufficient degree of penetration the demonstration of the skull and its contents is made comparatively easy. An x ray tube with a spark gap of five or six inches is capable of penetrating the average skull. The time exposure will vary with the thickness of the subject and the rapidity of the photographic plate in use. Several of the skiagrams taken have been done with a portable apparatus and others with powerful stationary installations. The exposure varies from five seconds to five minutes and good results have been obtained with various exposures between those limits. Recently it has been possible to get good detail with even shorter exposures than five seconds, and no doubt in time an exposure of a fraction of a second may be sufficient to overcome the resistance of the parts and yield good results.

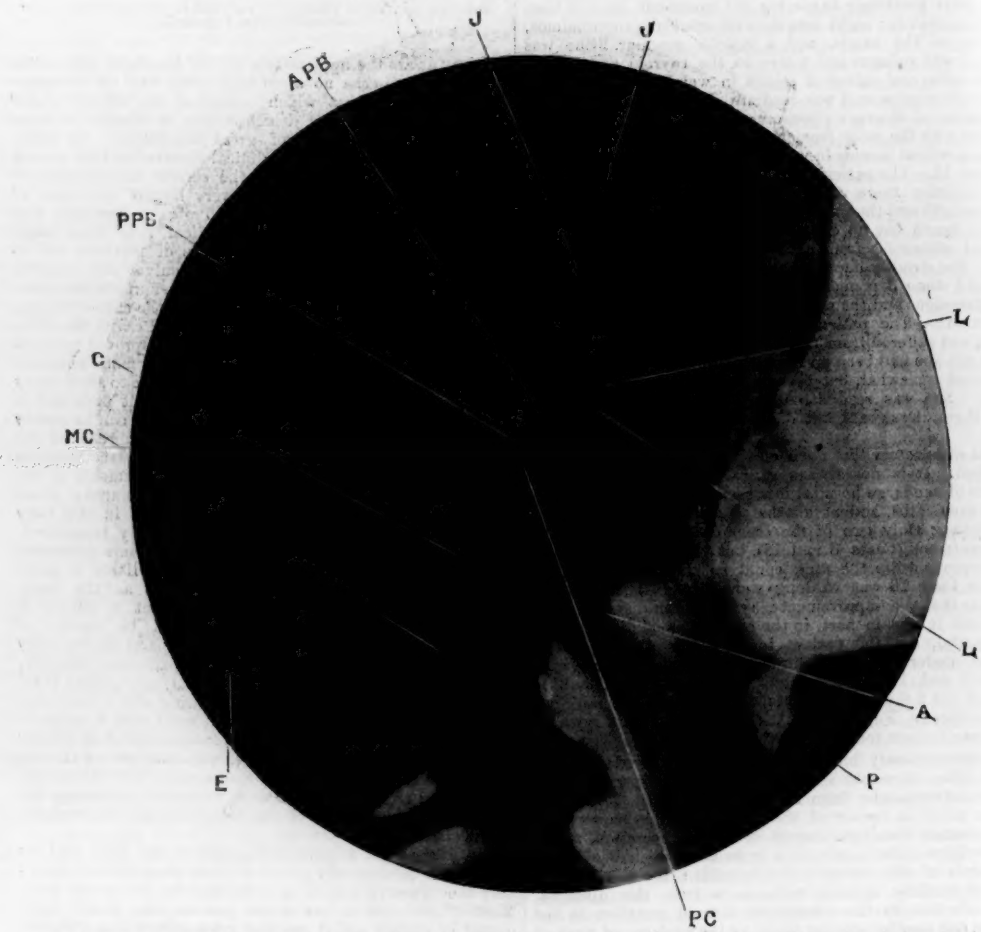
The chief advantage of a short exposure lies in the fact that movements are reduced to a minimum and the resulting

shadow is more clearly defined in consequence. While this is of great value in the radiography of regions of the body where movement is constantly going on, such as in the lungs and heart, it naturally has not the same importance in the case of the skull, where we have a rigid bony case to deal with. Yet no doubt even here short exposures will yield better results.

Quite recently the exposure time has been cut down to fractions of a second. This has been achieved by means of Wehnalt breaks and a special time switch which automatically cuts off the current at the proper moment. The radiographs so produced are remarkable for the clear definition of the parts taken, and one can readily understand why this should be so. The exposure is shortened by increasing to an enormous extent the amount of current passed through a tube. The tube will stand the strong current only for a short time, but sufficiently long to enable the rays to penetrate the thickest portions of the body and give good results. The important point about the new development lies in the very short duration of the exposure and the consequent elimination of the effects of voluntary and involuntary movements on the part of the subject. In the case of children this is a very important factor in the obtaining of good radiographs. Another advantage is that the patient can be placed at a greater distance than at present. At about six feet from the anode of the tube a shadow can be obtained which accurately represents the size of the organ radiographed. In heart work this promises to be extremely useful and the result will probably be that orthodiagraphy will be largely superseded by the new method.

In order to appreciate and demonstrate the existence of abnormalities it is necessary to be familiar with the normal appearances of the parts under consideration. The skiagram shown below, represented in Fig. 1 (a reproduction of a radiograph of a normal skull showing the principal bony points), was taken from a normal subject and an examination of its details will show the chief bony points which it is necessary to note for comparison when considering possible abnormalities.

FIG. 1



Skiagram of a normal head, showing appearances at the base of the brain. Note especially the two portions of the pituitary body, the anterior portion being situated in the sella turcica (APB) and the posterior portion behind it (PPB). A, Condyle of lower jaw. P, Artificial plate in upper jaw. PC, Posterior clinoid process. E, Cerebellum. MC, Mastoid air cells. C, Petrous part of temporal bone. J, Groove for blood-vessels. L, Anterior clinoid process.

The points to observe are the levels of the base of the skull in relation to the exterior, the clinoid processes with the sella turcica between, the relations of the chief sutures to the various levels, and the well-marked grooves in the inner table of the skull for blood vessels. A clearly-defined shadow is thrown by the pituitary body situated in the sella turcica. The three levels of the base of the skull are well shown. This radiograph was taken with a 12-inch intensified induction coil by Watsons and a Mote magnetic break on a voltage of 240. The tube used was a heavy anode by Muller and the equivalent spark gap was about five inches. The exposure was a long one of about three minutes. A simple diaphragm compressor was used to cut

off secondary radiations. An Ilford special x ray plate was used. The developer was pyro soda. The development of the plate took half an hour.

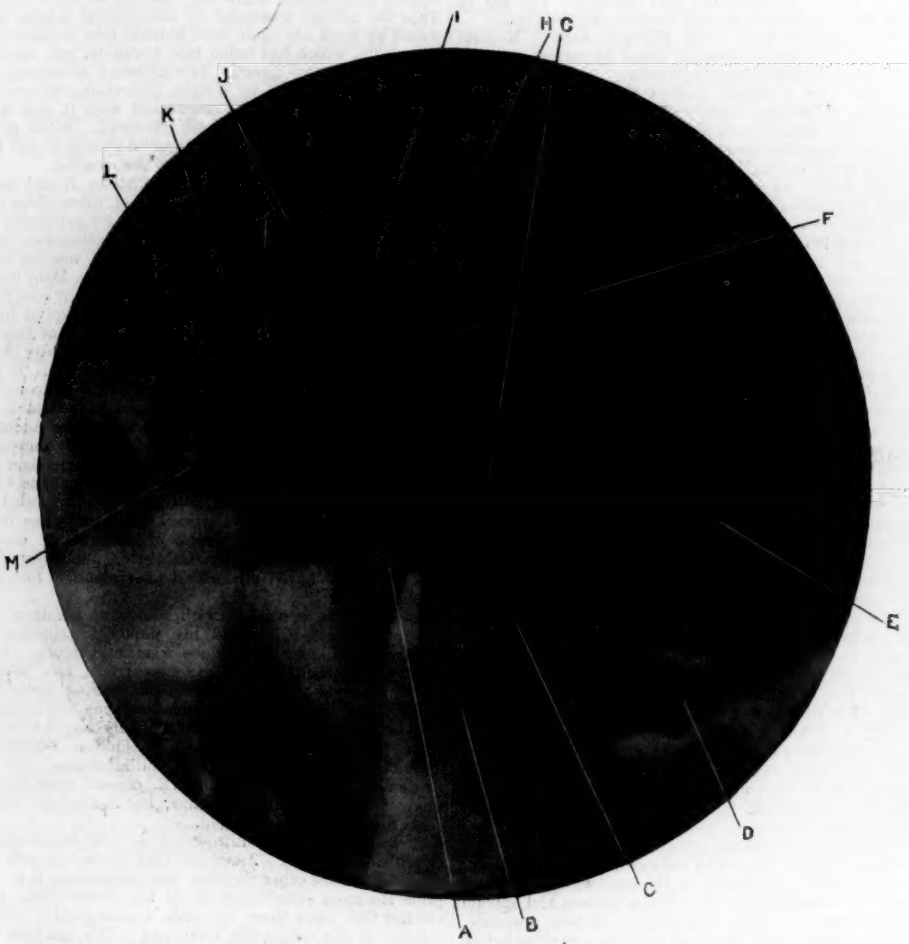
Fig. 2 shows the appearance of the skull in a case of cerebral tumour: a chiasma lesion of fairly large size. The radiogram which it represents was taken with a diaphragm between the tube and the subject to cut off secondary radiations. The case was sent to me by Dr. W. Mailer of Muswell-hill, and Dr. Purves Stewart has kindly supplied me with the following particulars:—

The patient was a man, aged 35 years, who complained of persistent drowsiness of several months' duration. A month before coming under observation he had had sudden unconsciousness with convulsions. Next day he noticed the right eye blind. On examination he was found to have total blindness of the right eye with temporal hemianopia of the left. The condition was characteristic of chiasma lesion. The discs were pale. The knee- and ankle-jerks were normal and the plantar reflexes plantar. X rays showed enlargement of the pituitary fossa. A deep-seated fronto-occipital headache supervened and an operation was performed by Mr. C. A. Ballance to try to remove the growth. It was found inoperable. The patient died and at the post-mortem examination a large growth was found at the base extending from the chiasma backwards to the pons and indenting the base of the brain.

The x ray examination of this case was particularly instructive. The patient had an average sized head which was rounded and wide. He was strongly built and had well-developed cranial bones. The early radiographs included the whole skull and showed an obscuration of detail in the region of the sella turcica. It was noticed that the anterior clinoid processes were barely perceptible while the posterior were obliterated.

The appearances seen in the skiagram can be interpreted as follows: A well-defined shadow occupies the sella turcica and extends backwards to the posterior limit of the petrous temporal bone; it is of varying density, having light and dark areas in its midst. The anterior clinoid processes are ill defined and appear to be spread out laterally. The posterior processes are not to be seen. The shadow of the tumour fades away into the brain substance.

FIG. 2.



Skiagram from a case of tumour at the base of the brain. Note obliteration of definition of sella turcica. A, Condyle of lower jaw. B, Body of vertebra. C, Mastoid process. D, Spinous process of vertebra. E, Cerebellum. F, Shadow of tumour. G, Petrous portion of temporal bone. H, Upper limit of shadow of tumour. I, Lower limit of shadow of tumour. J, Groove for blood-vessel. K and L, Anterior clinoid process. M, Sphenoidal fissure.

The examination of the brain offers the greatest difficulties in the Roentgen diagnosis of diseases. Dr. Paul Regnier and Jules Gloner have published a paper on this subject which is full of useful information. Dr. D. Walsh summarises their results as follows:—

Their main conclusions are that it is possible to superimpose upon the photographic plate the outline of the cranial sutures and of the cerebral fissures and convolutions. The outline of the lateral ventricle can be traced, the relations of the venous sinuses, especially of the lateral sinus, to the skull can be defined both in the child and the adult. The extremely variable form of the cavities and bony cells of the bony sinuses can be studied. The exact position of the three levels of the base of the skull can be ascertained with regard to the outer skull.

The exposures they gave were long ones, from 10 to 40

minutes. Such exposures are not safe in the living subject. None of the exposures in the cases quoted in this paper exceeded four minutes. Good results can be obtained with an exposure of five seconds and in view of the recent developments one is safe to predict that in the future it will be possible to get a good radiograph from the living subject with a second's exposure and possibly with one of a tenth of a second. The advantages of such a short exposure cannot be over-estimated. With such short exposures it will be possible to clearly outline the bony points of the skull, the grooves for the blood-vessels in the walls of the skull, and possibly the outlines of the chief parts of the brain. Abscesses in the brain might be shown, and it might even be possible to locate hæmorrhage of any considerable size. Tumours are capable of being demonstrated and located. The aid to diagnosis and localisation of such tumours will be great.

Dr. Walsh, in his book "The Röntgen Rays in Medical Work," quotes several interesting cases by various workers and describes methods for the localisation of foreign bodies in the brain. By a simple method which he describes it is, as he says, possible to locate with the tube in two positions by bringing an opaque object into line with the foreign body and then marking the entry and exit of that line on both sides of the skull, the point of intersection being the site of the foreign body. In a case of bullet in the brain a rough method of localisation was adopted by me to which I will refer. A thin piece of wire was placed around the head as nearly as possible in line with the lower and outer angles of the orbits and the mastoid processes. Another piece was carried over the vertex of the skull in line with the anterior edges of the auricles. The patient was then placed on his side with the plate underneath his head, and a radiograph was obtained in this position. The position was then reversed and one taken from the opposite side. A third negative was obtained in the antero-posterior position. On comparing the three plates it was seen that a large fragment of the bullet was lodged in the occipital region immediately underneath the bone and on the right side of the brain. The surgeon who operated on this case was able to locate the bullet accurately and made his trephine wounds in the skull in such a position that when the bone was removed the portion of bullet could be felt with a probe in the position indicated by the radiographs. An instrument capable of being adjusted to fit the skull of any individual could readily be devised of such a nature that the various portions of the skull and brain could be divided into sections and when used in radiography would show where a foreign body was situated.

In a case of a foreign body in the right eyeball we were able to see from the radiograph that the fragment of steel was clearly in the eyeball and from its size it was evident that the function of the organ must necessarily have been destroyed. The eyeball and foreign body were removed by operation. For purposes of localising foreign bodies in the eyeball Dr. J. Mackenzie Davidson has devised a useful apparatus which should be applied in all cases where doubt exists as to the exact position of a foreign body in the orbit. The importance of determining whether a foreign body is in the eyeball or in the orbit is, of course, obvious, and careful radiographic examination should be made in all such cases before an operation is decided upon.

The examination of the ear by radiography may be helpful in cases of disease. Abscesses in the mastoid region should be capable of demonstration. The frontal sinuses and antrum can be examined by taking negatives in various positions, and, where possible, a probe passed into these cavities before the radiograph is taken will help to clear up the diagnosis in diseases of those parts.

Shepherd's-hill, N.

SHREWSBURY EYE HOSPITAL.—At the annual meeting of the Shrewsbury Eye, Ear, and Throat Hospital, an institution which was established as long ago as 1818, the honorary ophthalmic surgeon, Mr. C. G. Russ Wood, commented on the large increase in the number of children who required spectacles. The increase is, no doubt, more apparent than real and is due to the inspection of school children which is being carried out in Shropshire and the adjoining Welsh counties from which the patients of the hospital are drawn. During the past year an entirely new system of drainage has been carried out at the hospital and a new out-patient operating theatre has been erected. In spite of the unusual expenditure thus entailed the balance-sheet was a satisfactory one.

SOME REMARKS ON TUBERCULIN THERAPY.

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THE growth and increasing importance of vaccine therapy at the present time is generally recognised. The opsonic method of Wright has established this mode of treatment on a scientific basis. The brilliant results obtained by this treatment in staphylococcic infections have led to the hope that equally good results might be obtained in other infections. Thus the vaccine treatment of tuberculosis originally introduced by Koch has again been brought into prominence, and tuberculin, which had fallen into disrepute, was again taken up as a curative agent. Administered according to the principles laid down by Wright, tuberculin has proved free from the dangers formerly associated with it, and in many cases good results have been obtained. While the final verdict cannot yet be given as to its efficacy it may be said that the results obtained have been encouraging.

Since the introduction of tuberculin by Koch[1] about 17 years ago for the curative treatment of tuberculous disease there have been marked fluctuations in its popularity in the medical world. It was received with enthusiasm and subjected to extensive clinical trials. But it was not destined to fulfil the hopes entertained of its utility. Many observers reported that it was a dangerous remedy and it soon fell into disrepute. The report of the Brompton Hospital for Consumption, 1892, stated that tuberculin did not favourably influence the course of the disease in the majority of cases. The reaction against it was probably excessive. It proved disappointing for several reasons. The doses recommended by Koch were too high, and it was used in unsuitable cases. But the fact remained that it was practically abandoned as an agent, if not positively harmful, at least incapable of effecting the good claimed for it. It was no longer looked upon as a curative agent, but the febrile reaction which it produced in a tuberculous individual was regarded as of value in diagnosis. In veterinary practice it has found a permanent value as a means of recognising concealed tuberculosis, and recently Calmette, Wolff-Eisner, and von Pirquet have utilised it successfully for human diagnosis.

The dangers associated with the administration of old tuberculin led Koch and his pupils to continue their researches in order to produce a safer tuberculin. In 1897 Koch[2] announced that he had prepared a new tuberculin which retained the curative and immunising power of the old one, but did not produce any dangerous febrile reaction, and no ill-consequence resulted from its use in tuberculous cases. The dose recommended by Koch was 1-500th milligramme, gradually increased to 20 milligrammes. The introduction of the new tuberculin T.R. caused some renewal of interest in the subject for a time, but in England it did not seem to gain any general hold.

Recently Koch has introduced a new tuberculin B.E. (Bacillen-Emulsion). Assuming that tuberculin acts in the same way as the other vaccines, the preparation B.E. should prove the most satisfactory of all the tuberculins. During the last few years there has been a considerable revival of interest in the tuberculin treatment. This has been due in England chiefly to the researches of Wright on opsonins and the application of his opsonic index determinations to the treatment placing it in a line with the treatment by other vaccines. But it must not be forgotten that many physicians have continued to use tuberculin ever since its introduction quite independently of Wright's work on the subject. The detailed method associated with Wright's name for the determination of the opsonic index is not an essential part of the therapeutic application of tuberculin. Previously the tuberculin treatment has been regulated by other clinical signs, including pulse, temperature, patient's aspect, local symptoms and signs, and prolonged experience justifies the statement that these clinical signs will suffice, apart from opsonic index determinations. The complexity of the technique

[1] R. Koch: Mittheilungen über ein Heilmittel gegen d. Tuberkulose. Deutsche Medicinische Wochenschrift, No. 14, 1890; Mittheilungen über das Tuberkulin, ibid., Jan. 15th, 1891, and Oct. 22nd, 1891.

[2] Deutsche Medicinische Wochenschrift, April 1st, 1897.

of Wright's method is also an insurmountable difficulty in many cases, and detracts greatly from its general utility. The margin of error in such a complicated process must necessarily be considerable, and this fact must also be taken into consideration in estimating the practical value of opsonic index determinations. The question of the utility of the method in practice must therefore still remain an open one. Wright's work, however, has given a fresh start to the active immunisation method of the treatment of tuberculosis, and what we particularly owe to Wright is the demonstration that small doses of tuberculin are effectual and that large ones are unnecessary. The peculiar action of the tubercle bacillus, as shown by the slowness and chronicity of the lesions which it produces, the tendency to spontaneous healing of tuberculous foci by caseation and encapsulation, place this organism on a somewhat different footing from the other organisms as regards the process of immunisation, and the dosage of tuberculin may differ from that of the other vaccines. There is little doubt, however, that in certain cases of localised tuberculosis, such as lupus, tuberculous joints, glands, and genito-urinary tuberculosis, improvement has followed the use of tuberculin according to Wright's method.

Further study will be necessary before the exact nature of opsonin and opsonic action is fully understood. The opsonic theory attempts to explain the action of vaccines by their stimulation of the immunising machinery of the body to the increased formation of opsonin. Wright holds that the practical application of the opsonic theory, as shown by the method which he has described of estimating the opsonic index, enables us to follow the successive phases of immunisation, and we can step in and assist the process at appropriate times by injections of vaccines. By estimating the opsonic index in cases of tuberculosis he was able to observe the variations in the amount of opsonin present as shown by what he called the positive and negative phases. From these variations he deduced that in an untreated tuberculous individual spontaneous auto-inoculations occur from time to time which follow a certain cyclic periodicity. The negative phase, or the period of low opsonic index, shows that there has been an outpouring of either tubercle bacilli or their products of metabolism into the system from the tuberculous focus and this has used up most of the opsonin present. The positive phase which followed the negative was due to the increased production of opsonin, owing to the stimulation of the machinery of immunisation by the bacilli and their products. He also showed that these auto-inoculations could be influenced by artificial means; thus, by massage of a tuberculous knee he brought about a negative phase due to the increased outpouring of bacilli and their products. He utilised such artificial auto-inoculations as an aid to diagnosis. To take the same example, the diagnosis of a certain chronic knee affection was required. The opsonic index was taken, massage or passive movement was performed, and the opsonic index again estimated. The second estimation showed a lower index than the first. The joint was therefore tuberculous. He also showed that the administration of tuberculin acted in a similar way to spontaneous or artificial auto-inoculations. A dose of tuberculin was followed by a negative phase. Opsonin was used up for coping with the inoculum. This provoked a fresh production of opsonin in increased amount and was therefore succeeded by a positive phase. The process of immunisation could thus be regulated by appropriate doses of tuberculin at suitable intervals, the aim of the injections being to get the index to oscillate within normal limits as in a healthy individual. Clinically the negative phase coincided with a feeling of illness, the temperature perhaps was raised, and the pulse accelerated. On the other hand, during a positive phase the patient felt better and brighter. Wright[3] showed that the amount of opsonin in the serum also corresponded with the amount of other immunising substances. He tested this by measuring the agglutinative power of the blood of a guinea-pig, which was subjected to inoculations of glanders bacilli sterilised by heat. The amount of agglutinin in the blood showed positive and negative phases similar to those in opsonic estimations. The course of the immunising reaction could be followed either by measuring the amount of opsonin or the amount of agglutinin present in the blood. By estimating the opsonic index, therefore, from time to time we are enabled to gauge the progress of immunisation and to help it on when necessary by inoculation of tuberculin.

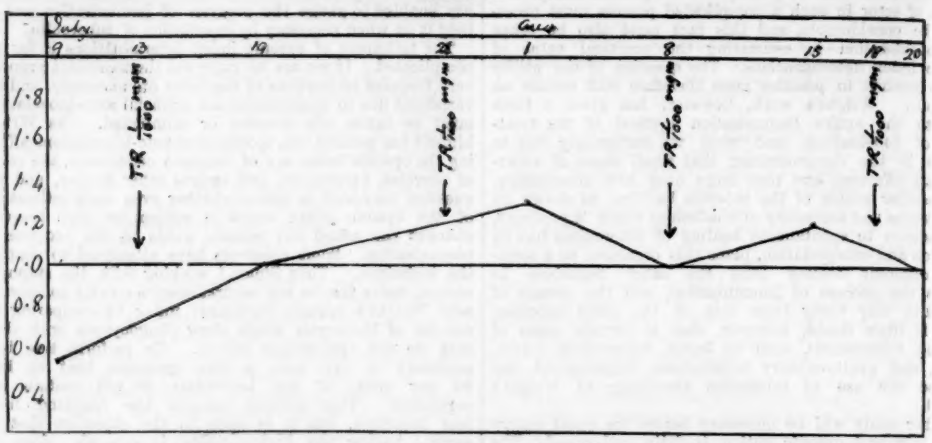
The technique of opsonic index determinations is far too complicated. If we are to carry out the treatment properly very frequent estimations of the index are necessary, and the variations due to spontaneous and artificial auto-inoculations must be taken into account or eliminated. As Wright himself has pointed out, spontaneous auto-inoculations affecting the opsonic index are of constant occurrence, the result of exercise, excitement, and various other factors, and the question may well be asked whether even daily estimations of the opsonic index which is subject to such frequent changes can afford any reliable guide to the progress of immunisation. Some observers have attempted to simplify the technique. Thus Simon,[4] working with the staphylococcus, states that he has secured results strictly comparable with Wright's opsonic (bacillary) index by comparing the number of leucocytes which show phagocytosis with those that do not (percentage index). To perform this it is necessary to use such a thin emulsion that at least 50 per cent. of the leucocytes do not contain any organisms. This method renders the counting much less laborious, but it is open to the objection that the serum, having the higher value in opsonin, does not meet with a sufficient number of bacilli to enable it to show its full opsonic power, and an experimental error is thereby introduced. The present tendency is to seek some other reliable guide to the administration of tuberculin than opsonic index determinations, and the researches that are being carried out at the present time have been undertaken with that object. Thus the recent work of Dr. A. Latham and Dr. A. C. Inman[5] has thrown valuable light on the dosage and mode of administration of tuberculin, based on observations of the temperature and clinical condition of the patient, combined with simultaneous observations of the opsonic index. Wright's method has, however, been of undoubted value in giving a great stimulus to vaccine and tuberculin therapy and placing this mode of treatment on a scientific basis, replacing the former empiricism and uncertainty of dosage by some degree of precision.

The following cases were under my care at the Ida and Robert Arthington Hospitals whilst I was resident medical officer there, and I am indebted to Mr. Harold Collinson, honorary surgeon to the hospitals, for granting me the necessary facilities for carrying out the tuberculin treatment. The opsonic estimations were undertaken by myself, with the assistance of Dr. O. C. Gruner, pathologist to the Leeds Infirmary. In all cases the tuberculin treatment was carried out in addition to the ordinary remedial measures. (The hospitals are so constructed that patients can undergo open-air treatment as in a sanatorium.) No special selection was made in the cases for treatment, and it was therefore tried in various conditions of advanced and early phthisis, glandular and bone tuberculosis. The injections were given in the flanks, using an all-glass syringe, and the patients remained in bed for 24 hours after each injection to eliminate as far as possible any spontaneous auto-inoculations. As regards the technique employed for estimating the opsonic index, the only modifications from that described by Wright were, that instead of taking equal quantities of the three constituents—viz., emulsion of tubercle bacilli, leucocytes, and serum—it was found better to use equal quantities of emulsion and serum with twice the quantity of leucocytes. The controls were made with my own serum which was previously compared with Dr. Gruner's and found to give about the same index. In order to minimise the experimental error as far as possible, the opsonic index of a second healthy person's blood was taken in many cases and the mean of the two used as a standard. It was also found that if a long series of "bloods" were examined on any one occasion, the last two or three always gave an unduly low opsonic index. It is known that the opsonic power of the serum diminishes gradually after it has been withdrawn from the body, and this may be the explanation of the above fact. In order to avoid this error it is advisable not to test more than six bloods on any one occasion, and all the specimens should be obtained within a

[3] Wright: THE LANCET, Nov. 2nd, 1907, p. 1217.

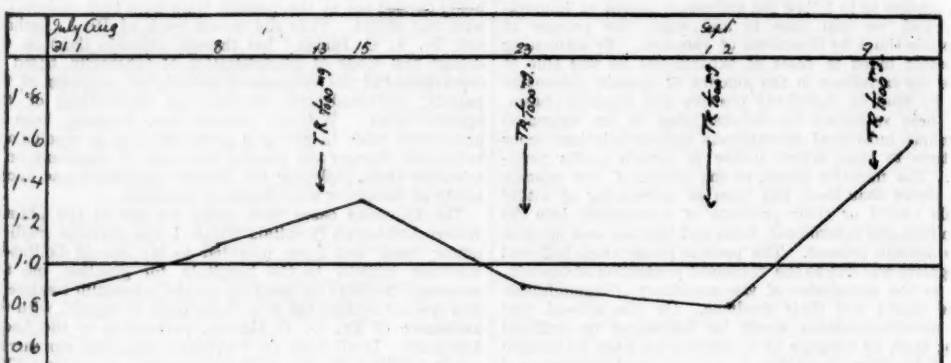
[4] Simon: Journal of Experimental Medicine, September, 1907.
[5] Latham and Inman: THE LANCET, March 28th, 1908, p. 934.
[6] Ruppel: Deutsche Medicinische Wochenschrift, Jan. 30th, 1908.

CHART 1.



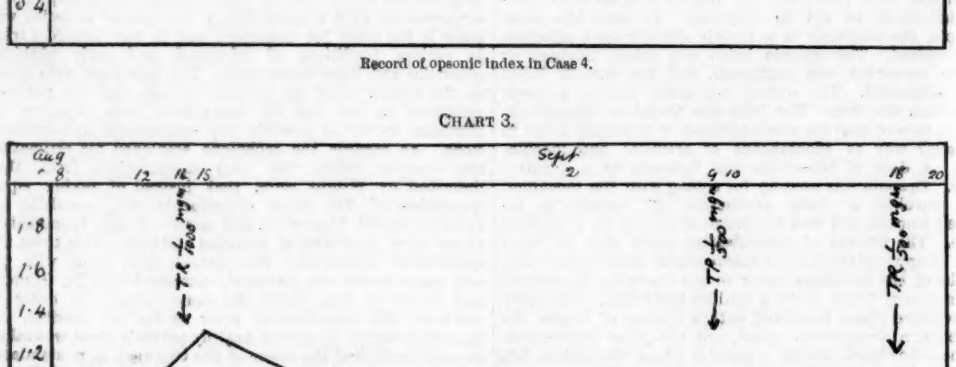
Record of opsonic index in Case 1. The doses in this and the following charts represent the quantity of dry tubercle bacilli administered. If expressed in terms of the dry powder resulting from the repeated disintegration and extraction of the bacilli the doses would be one-fifth of those given.

CHART 2.



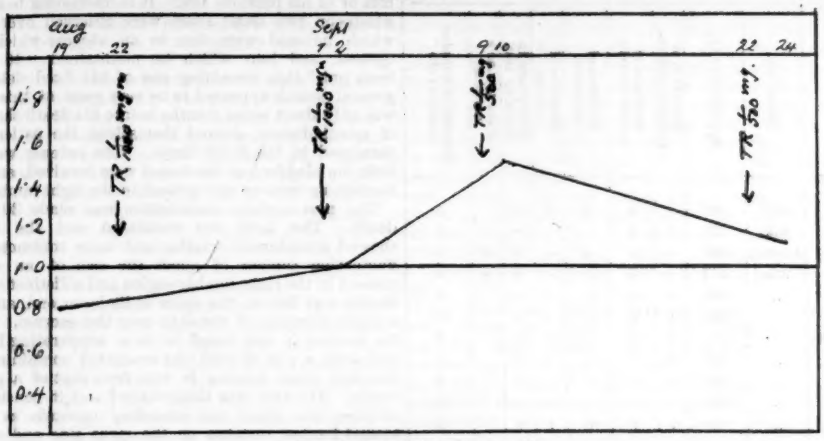
Record of opsonic index in Case 4.

CHART 3.



Record of opsonic index in Case 6

CHART 4.



Record of opsonic index in Case 12.

short time of each other. The following are brief details of the cases:—

CASE 1 (see Chart 1).—The patient, aged 16 years, was admitted to the Robert Arthington Hospital on June 21st, 1907, suffering from tuberculous disease of the fauces and soft palate of about six months' duration. ? Slight lesion at apex of right lung. No tubercle bacilli in the sputum. Open-air treatment and inoculations of tuberculin. Discharged on August 30th much improved, considerable increase in weight, disease in throat apparently cured.

CASE 2.—The patient, aged ten years, was admitted to the Robert Arthington Hospital on July 3rd, 1907. Pleurisy with effusion; clear fluid aspirated from the chest on several occasions. The tuberculo-opsonic index points to the condition being tuberculous. Discharged on July 31st. No further collection of fluid in chest.

CASE 3.—The patient, aged eight years, was admitted to the Robert Arthington Hospital on May 11th, 1907. Chronic phthisis (right); tuberculosis of some of the ribs; numerous tuberculous abscesses of skin with discharging sinuses; febrile. Vaccine treatment; complete rest in bed in the open air. Discharged on August 3rd very much improved. Most of the sinuses healed up; gained considerably in weight.

CASE 4 (see Chart 2).—The patient, aged 34 years, was admitted to the Ida Hospital. Well-marked phthisis (left); tubercle bacilli in sputum; slightly febrile. Open air; tuberculin, also creosote intermittently. Discharged on Sept. 20th to Armley Sanatorium. Disease not advancing. The chart represents the latter period of his stay at the Ida Hospital.

CASE 5.—The patient was admitted on July 3rd, 1907. Spinal caries; psoas abscess, opened and drained. Staphylococcic infection of abscesses (staphylococcic index, 0·6). Only one inoculation of tuberculin was given. Discharged on Sept. 14th with sinus healed.

CASE 6 (see Chart 3).—The patient, aged seven years, was admitted to the Ida Hospital on June 1st, 1907. Tuberculous disease of the hip; abscess; incision. In this case the tuberculin was distinctly beneficial, the improvement in his general condition being most marked during the time he received the injections. Discharged on Oct. 12th in a Thomas's hip splint. Abscess quite healed.

CASE 7.—The patient, aged eight years, was admitted in July, 1907. Phthisis; tuberculous peritonitis; fever; marked wasting. No immunising response was shown to the inoculation of tuberculin. Discharged at parent's request; worse.

CASE 8.—The patient, aged 25 years, was admitted to the Ida Hospital on July 24th, 1907. Spinal caries; psoas abscess; sinus. Improved under vaccine treatment; sinus healed.

CASE 9.—The patient, aged 18 years, was admitted on July 16th, 1907. Tuberculosis of left elbow-joint; phthisis (left); double mitral disease. Bier's treatment also used with tuberculin injections. Elbow-joint, however, became more swollen and painful. Finally amputation of the arm was performed. It was not thought advisable to subject the patient to the severe operation of excision of the elbow on account of the co-existing mitral disease and phthisis.

CASE 10.—The patient, aged 28 years, was admitted to the Robert Arthington Hospital on August 25th, 1907. Early phthisis (right). As the result of treatment patient was discharged with the disease seemingly arrested. No cough or fever; considerable gain in weight.

CASE 11.—The patient, aged 23 years, was admitted to the Ida Hospital on Sept. 2nd, 1907, with symptoms of early phthisis. No tubercle bacilli in sputum. No physical signs. Open-air and vaccine treatment. Discharged after two months apparently cured.

CASE 12 (see Chart 4).—The patient, aged 21 years, was admitted on August 10th. Tuberculous disease of the ankle-joint (right); spinal caries. Bier's treatment used for ankle. On discharge (Sept. 23th) no signs of disease in it. Plaster jacket put on for the spinal condition.

The results cannot be said to show anything conclusive. Several cases seemed to derive benefit from the tuberculin inoculations. The injections raised the opsonic index in several cases but the negative phase was not at all constant. It is difficult to say whether the favourable results observed might not have been due to the open-air treatment alone. No harmful results were noticed after the inoculations, except in one case. This patient, aged 20 years, was an in-patient at the Robert Arthington Hospital six months previously for tuberculous disease of a rib and had received three or four inoculations of the tuberculin in the left fore-arm. She was discharged cured. In August, 1907, she was re-admitted with a tuberculous abscess of the left forearm which had developed at the site of the inoculations. The abscess was opened and scraped and soon healed. No further injections of tuberculin were given. The formation of an abscess was probably due to the presence of living bacilli in the tuberculin used.

Gower-street, W.C.

THE CEREBRO-SPINAL FLUID IN GENERAL PARALYSIS AND THE NERVOUS LUES.

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IN the light of Dr. F. W. Mott's Morison lectures the following research, conducted during the winter of 1907-08 at Greenock Poorhouse and Asylum, ought to prove of interest. A small amount of normal citrate solution was taken up in the syringe and ejected as the needle penetrated the tissue; in this way little or no blood was drawn into the syringe with the fluid, and the amount of citrate in the fluid itself was quite negligible in calculating the specific gravity. Where possible 8 cubic centimetres of the fluid were reserved for the chemical examination, the remaining quantity being used for cultural tests. In the post-mortem cases the ventricles were tapped before the brain was exposed and the cerebro-spinal fluid withdrawn, as in life. The cultural tests were undertaken with the view of testing Dr. W. Ford Robertson's hypothesis for general paralysis of the insane. The appended table gives the results of the chemical examination.

In making a count of the cells, 5 cubic centimetres of fluid were centrifugalised at high speed, the supernatant fluid poured off, and the deposit shaken up in ½ cubic centimetre of normal saline solution containing traces of formalin and polychrome blue; the figures represent the cells encountered in ten fields of 400 magnification.

The fluid of the general paralytics differs from the normal in having a high specific gravity and containing nucleo-proteid, in having a high count of cellular elements, and in giving a precipitate with butyric acid, according to Noguchi's method. The only case which gave a negative result was one of some years' standing and suffering at the time from profound melancholia. In the three cases in which the Wassermann test was applied a positive result was obtained and confirmatory to the Noguchi test. The cases of tabes dorsalis were uniform in containing nucleo-proteid in their cerebro-spinal fluid. Three out of five gave a Noguchi

Table showing the results of the Chemical Examination.

—	Reaction.	Specific gravity.	Reduction of Fehling solution.	Presence of nucleo-proteid.	Presence of albumose.	Presence of choltn.	Precipitate in Noguchi test.	Wassermann's reaction.	Number of lympho-cytes or cells.
General paralysis.	Acid.	1009	–	+	+	+	+		6
,,	Alk.	1011	+	+	–	–	+	+	5
,,	Ampho.	1009	+	–	+	–	+	+	3
,,	Alk.	1012	–	+		–	+	+	4
,,	,,	1008	+	+	–	–	–		0
,,	,,	1011	+	+	–	–	+		11
Tabes dorsalis.	,,	–	+	+	–	+	?		0
,,	,,	1010	+	+	–	–	+		4
,,	,,	1005	+	+	–	–	+		0
,,	,,	1009	+	+	–	+	–		0
,,	,,	–	+	+	+	+	+		3
Tabo-paralytics.	,,	1009	+	+	–	–	+	+	11
,,	,,	1004	+	–	–	+	–	–	7
,,	,,	1010	+	+	–	–	–	–	0
Optic atrophy primary.	,,	1016	+	+	–	+	–		8
,,	,,	1013	+	+	–	+	–		5
Cerebral syphilitic gumma post mortem.	,,	1001	+	–	+	–	+		0
Six normal persons.	,,	1005–9	+	–	–	–	–		0–4
Four normal persons.	,,	–	+	(1+) –	(1+) –	–	–		0–2
Two cases of heart disease.	Ampho.	1001 / 1003	–	+	–	–	–		0
One case of pernicious anæmia.	Alk.	1002	–	+	+	–	+	+	0
Three cases of syphilis.		1005–7	+	+	(1 +) –	–	+		4 average

precipitate. The tabo-paralytics, three in number, were selected for a Wassermann test; one out of the three gave a positive reaction and was also the only one to give a precipitate by Noguchi's method. Four cases of general paralysis, all the cases of tabes dorsalis, the cerebral syphilis, and the syphilitic cases had undoubted evidences of syphilis, and all gave the Noguchi reaction. It is noteworthy that one case of pernicious anæmia gave the Noguchi reaction and also Wassermann's reaction, although no history of syphilis could be obtained. In the seven cases in which Wassermann's reaction could be done the result confirmed the Noguchi reaction.

These facts are significant, but, of course, with only a small number of cases there is no justification for dogma.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON A CASE OF HYDATID DISEASE OF LUMBAR VERTEBRA.

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HYDATID disease of bone is a somewhat rare condition and the following case is of interest both from the advanced age of the patient and the prolonged duration of the disease.

The patient was an inmate of the West Riding Asylum and was 75 years of age. He had been admitted six years previously from the workhouse and nothing was known of him or of his previous life. It is interesting to note that on admission two small scars were observed over the sacrum which he said were due to an abscess which had been opened, and into which he maintained "13 worms had been put," this remaining one of his fixed delusions. His general health appeared to be very good at this time and it was only about seven months before his death that symptoms of spinal disease showed themselves, the patient becoming paralysed in the lower limbs. The reflexes were lost and both the bladder and the bowel were involved, and the small fluctuating tumour was noticed in the right lumbar region.

The post-mortem examination was made 20 hours after death. The body was emaciated and the lower limbs showed considerable wasting and some contracture. A soft fluctuating tumour of about the size of an orange was present in the right lumbar region and a distinct want of continuity was felt in the spine at its lower end, and there was a slight abrasion of the skin over the sacrum. On incising the tumour it was found to be a suppurating hydatid cyst and about a pint of fluid was evacuated containing numerous daughter cysts varying in size from that of a grape downwards. The cyst was thick-walled and it consisted of two cavities, the upper one extending upwards as far as the second lumbar vertebra on the right side and compressing the muscles, and the lower one somewhat to the left of the sacrum between the ilium and the pelvic muscles, quite extra-peritoneal but bulging into the abdominal cavity and forming a somewhat prominent tumour. The cavities communicated with each other, and on further investigation the body of the fifth lumbar vertebra was found to be quite carious, great destruction of bone having taken place, causing fracture of the spine. No new bone formation was seen. The lumbar vertebræ were removed, the fourth and fifth alone being involved. Tiny cysts were seen infiltrating the bone and had penetrated and lacerated the periosteum, the vessels of which were much injected. The membranes of the cord appeared to be healthy, but a few cysts were seen in the cauda equina. The right iliac crest was also carious, evidently from pressure, as no cysts were seen. No other cysts were found in the brain or other organs. There were evidences of cystitis and an ascending pyelitis and slight atheroma of the aorta.

On microscopical examination of the cysts numerous scolices and hooklets of the tænia echinococcus were seen, the walls of the large cysts showing laminated structure with considerable leucocytic infiltration. The lumbar and cervical regions of the cord were stained by the Weigert-Pal method and showed well-marked degeneration in the posterior columns, both postero-median and postero-externa being affected in the former, the postero-median alone being affected in the cervical region.

I am indebted to Mr. W. Bevan-Lewis, medical superintendent and director of the West Riding Asylum, for permission to publish this case, and to Dr. T. Dawson, assistant medical officer, for the clinical notes.

Wakefield.

A CASE OF COMPLETE ANÆSTHESIA INVOLVING A SINGLE DIGIT.

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AND
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HOUSE SURGEONS, BLACKBURN AND EAST LANCASHIRE INFIRMARY.

THE patient, a painter, aged 22 years, came to the Blackburn and East Lancashire Infirmary in July, 1908, owing to loss of sensation in the middle finger of his right hand. He had noticed nothing abnormal about his finger until he reached the age of 16 years, and so far as he could remember there had never been any injury to his hand or arm. When he was 16 years old he grazed the right middle finger when at work, and he was surprised to find that he felt no pain. Previous to the patient's discovery of loss of sensation in his finger he had been a painter for two years. He had no illness in his childhood with the exception of otorrhea, and his father stated that to the best of his knowledge the patient had no injury of any description when a child. At the age of 17 he had an attack of pneumonia,

but as this was after the onset of the digital anæsthesia it can have no bearing on the condition. The patient had never been abroad. His father, mother, five brothers, and one sister were alive and well. One brother died as the result of an accident.

When the patient came under observation he was a healthy-looking man, well-developed and muscular. The following points were noted. His pupils reacted equally to light and accommodation; there was no nystagmus and the disc was normal. The tongue was clean and the teeth were fairly good. The throat was normal and there were no enlarged cervical glands. Nothing abnormal could be discovered in the heart, lungs, or abdomen. The skin was dry, but sensation was everywhere normal, with the exception of the finger under consideration. The knee-jerks were brisk and the plantar response was flexor. The urine was acid, of specific gravity 1020, and contained no sugar or albumin.

On inspection the affected finger seemed perfectly normal, with the exception of a partially healed blister on the palmar surface of the distal phalanx, caused by the application of a lighted match to demonstrate the anæsthesia to a group of the patient's friends. Movement was natural. The surface temperature of this finger differed in no way from the rest. Tactile and thermal sensations were entirely lost, and the patient was insensible to pain. (As we stated above, he did not experience any discomfort when a lighted match was held to the finger.) He did not feel a strong galvanic or faradic current when applied to his finger. In order to ascertain if the bones or joints of the finger were in any way affected we obtained an x-ray photograph, which showed no abnormality present. The anæsthesia was very definitely limited to the right middle finger.

The following explanations suggest themselves:—

1. *Syringomyelia.*—Sensations of pain, heat, and cold are lost, which would be in favour of this condition, but tactile sensation is also lost, and in addition to this the main nerve trunks (median and radial) are unaffected, the anæsthesia being limited to the terminal portions of those nerves supplying the middle finger of the right hand. Déjerine states that in rare cases of syringomyelia there may be complete anæsthesia of the skin, and this may possibly be such a case, though there are no other symptoms—for example, irregular pains or muscular wasting—which would point to this condition.

2. A localised peripheral neuritis due to—

(*a*) *Traumatism.*—It is possible that the nerve trunks around the root of the finger may have been crushed during the patient's childhood and have never regained their functions. Such crushing must have been limited to the one knuckle, since sensation is perfect over the whole of the flexor and extensor surfaces of the rest of the hand and of the forearm, and the electrical reactions of all the muscles are normal. The skiagram shows that there is no gross lesion which might be interfering with the digital nerves at the present time.

(*b*) *Lead.*—In favour of a lead neuritis is the fact that the patient had been a painter for two years before he noticed the condition. But this explanation is practically put out of court by the fact that there has never been any trace of muscular paralysis. The occurrence of otorrhœa during the patient's childhood suggests the very remote possibility of diphtheritic infection preceding a rare localised neuritis, but this again can be negatived on similar grounds to the lead neuritis. In addition to which it is unlikely that a lead or diphtheritic neuritis would persist for six years as such a definitely localised condition.

(*c*) *Gummatous affection.*—There were no symptoms pointing to the presence of the disease, and it would be rare indeed for the toxin to affect definitely localised terminations of two separate nerve trunks.

A NOTE ON OPERATION FOR HERNIA AT THE EXTREMES OF LIFE.

BY H. W. WEBBER, M.S. LOND.,
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CASE 1.—On June 8th, 1908, I was asked by Mr. J. Elliot Square to see a man, aged 93 years, who was suffering from a strangulated inguinal hernia. The hernia was of some years' standing and had been more or less controlled by a truss, but on the present occasion reduction failed to be effected. The old man was in very good general condition and had vomited only twice. A drachm of novocaine solution having been injected subcutaneously over the site of the incision the division of the skin and superficial tissues was effected painlessly, but as much pain was complained of on incising the deeper parts and the patient began to throw himself about chloroform was administered to the stage of light anæsthesia. The hernia was a direct external one and the sac contained six inches of ileum. Reduction of the intestine and closure of the wound were performed in the usual manner, the sac being simply closed with catgut sutures at the neck and left *in situ*. The patient recovered well from the operation and the wound healed with only a little superficial infection. About a month later, however, he developed a cough and was found one morning dead in bed.

CASE 2.—A newly-born male child was admitted to the South Devon and East Cornwall Hospital at 5 P.M. on July 17th, 1908, having been born at 3 P.M. Through the unclosed umbilical opening there projected into the substance of the funis four or five coils of small intestine to a distance of three inches from the level of the skin, forming a pear-shaped tumour, the intestine being very thinly covered with the thinned-out gelatinous matter of the cord. Beyond the tumour the cord was of normal appearance and had been ligatured in the usual manner. The child presented a supernumerary auricle on each side, a cleft palate, and had a supernumerary digit on each hand. At 6.15 P.M. A.C.E. mixture was administered and an incision was carefully made through the thin covering of the intestines which were easily reduced into the abdominal cavity. One of the coils was found to be connected with the tissue of the cord by a thin fibro-gelatinous band which evidently represented Meckel's diverticulum. This was tied with fine catgut and divided. The umbilical opening was then closed with three catgut sutures and the edges of the skin approximated. The child took very little nourishment, became gradually weaker, and died early on July 19th.

Plymouth.

Medical Societies.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held on March 30th, Dr. T. S. Kirk, the President, being in the chair.—The following specimens were shown:—Professor T. H. Milroy and Dr. J. A. Milroy showed Microscopical Preparations of the Nervous System.—Professor T. Sinclair showed a series of large Vesical Calculi, a series of Gall-stones, a Cystic Kidney, a Pancreatic Cyst, Cancer of the Sigmoid, and Cancer of the Rectum.—Dr. Howard Stevenson showed a specimen of Tuberculosis of a Horse-shoe Kidney.—Dr. J. W. Browne showed a Duct Cancer of the Breast.—Sir John Byers showed an Ovarian Tumour removed during Pregnancy, an Ovarian Tumour removed from a patient aged 80 years, a Tubal Abortion, and several other gynæcological specimens.—Sir John Byers and Dr. W. J. Wilson showed a Syphilitic Fœtus with well-marked Wegner's osteochondritis occurring at the epiphyseal borders of the hollow bones. The woman who gave birth to the fœtus at the maternity was covered with rupia spots.—Dr. G. A. Hicks showed three Uteri removed for uncontrollable hæmorrhage with polypoid endometritis, submucous myoma of the fundus, and carcinoma of the fundus.—Dr. H. Hanna showed an Intraocular Tumour, Cancer of the Larynx, and a Lacerated Eyeball with a large foreign body.—Mr. A. Fullerton showed a Gall-bladder with stones *in situ*.—Mr. R. J. Johnstone showed a large Myoma (undergoing submucous degeneration) springing from the cervix.—Mr. Robert Campbell showed an enormously thickened Parietal Pleura excised, a Gall-bladder with a Stone blocking the Cystic Duct, and a Gall-bladder completely filled by Stones.—Dr. W. J. Maguire showed Microscopic Sections of the Brain and Cord from a case of Cerebro-spinal Fever.—Dr. C. E. Shaw showed Microscopic Sections of various Growths of the Eyelids.—Professor W. StC. Symmers read a paper on Anaphylaxis. He described a series of experiments in which a second dose of horse serum produced an alarming effect (high fever, œdema, and rashes) in guinea-pigs and even death in some cases, and also described cases of Scarlet Fever in which similar but

less severe symptoms had followed a second dose of serum.—Dr. Wilson read a short paper on an Original Method of Isolating the Typhoid Bacillus most useful in the case of water. He also read a communication on the Investigation of the Blood in Typhus Fever, and showed that in 11 out of 17 cases examined Widal's reaction was present, so that culture experiments were necessary to make a diagnosis between typhus and enteric in reference to the organism in the blood.—Dr. T. Houston made a communication on the Further After-history of a Typhoid Carrier.—Dr. J. S. Dickey read a short paper on the Surface Relations of the Apex of the Lung, in which he showed that a careful examination of a series of cadavers demonstrated that the cervical portion of the lung was within the inner fourth of the clavicle.

LIVERPOOL MEDICAL INSTITUTION.—The last pathological meeting of the session of this society was held on April 1st, Mr. T. H. Bickerton, the President, being in the chair.—Dr. O. T. Williams showed Tubercle Bacilli from Cerebro-spinal Fluid.—Dr. R. W. McKenna exhibited specimens of Spirochæta Pallida.—Dr. E. E. Glynn showed: (1) A Gummatous Heart; and (2) a Cerebellar Cyst.—Dr. R. E. Harcourt and Dr. E. Stevenson exhibited: (1) Sarcoma of the Eye Growing from the Disc; and (2) Sarcoma of the Orbit.—Dr. J. Lloyd Roberts showed an Aneurysm of the Arch and Descending Part of the Thoracic Aorta.—Dr. A. Nimmo Walker read a note on the Application of Bacteriology to Eye Surgery. He described the methods of bacterial examination of the conjunctival sac in: (1) cases of purulent discharge; and (2) clean cases previous to operation. At St. Paul's Hospital this examination was the routine practice and he strongly emphasised the value and necessity of such. He illustrated his remarks by cases, films, and cultures.—Dr. Glynn read a note on Hepatic Cirrhosis with Adenomata and Carcinoma. A male, aged 49 years, died after eight months' illness. He had all the signs of cirrhosis, slight jaundice, and latterly the liver was enlarging. Post mortem the liver weighed 119 ounces and showed (1) multilobular cirrhosis of the right lobe, with circumscribed green "adenomata," and microscopically many bile-containing tubules, also diffuse white growths, resembling spheroidal-celled cancer, infiltrating the portal vein and causing enlarged spleen; (2) there was marked compensatory hypertrophy of the left lobe, with a few "adenomata." There were no growths in other organs.—Dr. J. Hill Abram and Dr. A. G. Gullan discussed the note, referring to three or four similar cases which they had met with. One of Dr. Abram's cases was associated with secondary growths in the anterior mediastinum.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on April 2nd, Dr. Leslie Durno, Vice-President, being in the chair.—Mr. J. Houston Porter showed two cases of Achondroplasia, the patients being brothers, aged 50 and 52 years respectively. They presented many of the characteristic features of achondroplasia—namely, marked micromelia, the shortness of the limbs affecting the upper segments more than the lower, as is usually the case, the upper arm and thigh being shorter in proportion than the forearm and leg. The affected long bones showed considerable exaggeration of the normal curves, this being well exemplified in radii and femora. The epiphyses were in nearly every case thickened and nodular, the result of excessive and irregular deposition of subperiosteal bone. The feet were small, owing to the shortness of metatarsals and phalanges, and square in shape. The gait was decidedly rolling and waddling. The skull was of the usual type found in these subjects. The bones of the vault, which were developed in membrane, were of at least average size and usual shape, while those of the base, which were developed in cartilage and underwent an early synostosis, were small. The face was thus in general outline triangular, the small lower jaw producing a pointed chin which formed the apex of the inverted triangle. Their father, grandfather, uncle, and another brother were similarly affected.—Mr. P. Maynard Heath showed a woman, aged 33 years, who six months ago had been operated on for chronic abscess of the left breast. Four months ago she developed a chronic induration of the skin of both breasts and upper arms which was thought to be probably myxœdematous.—Mr. Heath also showed a woman, aged 46 years, with fatty enlargement around the left elbow.—Dr. T. Galbraith read notes of a case of Atheroma of the Left Coronary Artery with fatal Angina Pectoris in a woman, aged 45 years.—Dr. L. U. Young related a case of Labour complicated by Uterine Fibroid in a primipara, aged 42 years. He also described a case of Puerperal Eclampsia in a primipara, aged 24 years, which he had successfully treated by saline transfusions, chloroform inhalations, and morphine injections.

Reviews and Notices of Books.

Guide to the Clinical Examination and Treatment of Sick Children. By JOHN THOMSON, M.D. Edin., F.R.C.P. Edin.; Physician to the Edinburgh Hospital for Sick Children; Joint Clinical Lecturer on Diseases of Children, University of Edinburgh; Honorary Member of the American Pediatric Society. Second edition, greatly enlarged and rewritten. With 160 illustrations. London and Edinburgh: William Green and Sons. 1908. Pp. 629. Price 12*s.* 6*d.* net.

IT is a pleasure to review so thoroughly practical a work on the clinical aspects of disease in children as that written by Dr. John Thomson. It is the second edition of a book published ten years ago, but it has been more than doubled in size, although retaining the general character of the original edition. The most admirable feature is the clear and concise manner in which the special characteristics of disease in childhood are presented. The author obviously draws his descriptions from his own experience, while recognising and paying due attention to the work of others. The book is liberally illustrated, for the most part by reproductions of photographs of cases observed by the author himself, which serves to accentuate the personal note in the character of the book. The arrangement of the subject matter is also to be commended. The various diseases are not described according to any stereotyped plan, and the separate chapters are devoted to a consideration of the clinical phenomena to be observed in regard to a given system, or to a study of a special symptom, or of groups of symptoms, and of their significance in diagnosis. This method of treating the subject renders it more interesting and more instructive than a mere categorical enumeration of symptoms and physical signs.

The first chapter includes some useful hints on the manner of carrying out the routine examination of infants and children, and also some instructive examples and illustrations of the physiognomy of disease in these periods of life. A useful chapter on dentition contains a well-balanced discussion of the part played by that process as a factor in the causation of disease. Dr. Thomson rightly considers that the wisest position to adopt is that of avoiding the extremes of opinion, according to which dentition is regarded, on the one hand, as the cause of a multitude of ills, or, on the other, as a purely physiological process never accompanied by unpleasant symptoms. Another subject which is dealt with in a critical and interesting manner is that of hypertrophic stenosis of the pylorus, or congenital spastic hypertrophy of the pylorus, as Dr. Thomson prefers to call it. This is a subject to which he has devoted special attention, and as he has personally observed 41 cases it is one on which he is entitled to write with authority. He gives the views of other observers and also that which he has put forward—viz., that the hypertrophy of the pyloric musculature is the result of overwork due to defective coördination. He also discusses at some length the treatment, both surgical and medical. The "mucous disease" of Dr. Eustace Smith is described under the name of chronic intestinal indigestion, and Dr.

Thomson gives detailed instructions for the dieting and treatment of this somewhat indefinite condition. He deprecates the common practice of giving cod-liver oil, ferruginous tonics, and excess of farinaceous foods to children suffering from this condition on the supposition that they are suffering from "debility." We may mention as specially interesting the chapters on jaundice, on some diseases of the blood and blood-forming organs, on mental defect, and that on rickets and certain other diseases affecting the bones. In the chapter on certain respiratory diseases the accounts given of the physical signs and symptoms are less complete than might be expected, notably in regard to empyema. In the preface Dr. Thomson states that he has not confined his attention entirely to common ailments, but has been guided in the choice of subjects by his own experience and predilections. Some of the most interesting and instructive parts of the book are those dealing with more or less uncommon malformations or diseases; among these we may mention "congenital unilateral pectoral defects" and Hirschsprung's disease. The important practical questions of infant feeding, nursery hygiene, and general therapeutics each have a special chapter devoted to them, and in these will be found many valuable hints the outcome of personal experience.

The scope of the book is avowedly clinical and therefore pathological questions are either omitted or very briefly noticed. The leading characteristic which makes this book so praiseworthy is the sound common sense which illuminates it throughout, and we can cordially recommend it to our readers as both interesting and helpful.

Transactions of the American Ophthalmological Society. Forty-fourth Annual Meeting, New London, Conn., 1908. Vol. XI., Part III. Hartford. 1908.

THE annual volume of the transactions of the American Ophthalmological Society always contains interesting and instructive matter. In the present one Dr. de Schweinitz and Dr. Holloway contribute an excellent paper on Five Cases of Sudden Obstruction of the Central Artery of the Retina, a condition usually less accurately described as embolism. Particularly noteworthy in these cases are the occurrence of central or paracentral scotomata and the preservation of some vision in the temporal part of the field. As regards the latter, in the particular case where it is described it appears to have been more central than in most of the other cases recorded elsewhere. An allied condition, embolism of a macular artery and thrombosis of superior and inferior retinal arteries in a case of embolic softening of the brain, is commented upon by Dr. Shoemaker. In this case a pathological examination of the eye was possible. Dr. Quackenboss and Dr. Verhoeff report a rare case of angioma of the orbit invading the globe along the ciliary nerves. Dr. Kipp adds cases of macular holes to the now considerable number already on record. Polycythæmia has recently attracted attention in medical circles. Dr. Tyson has added to the scanty ophthalmic literature on the subject the careful report of a case. Dr. George Derby's observations on the conjunctival tuberculin reaction of Wolff-Eisner and Calmette and the cutaneous reaction of von Pirquet are worthy of special attention at the present time; they have led him to conclude that phlyctenular conjunctivitis is tuberculous. Interstitial keratitis in acquired syphilis is by no means so rare as has been thought; the subject is discussed in all its bearings by Dr. John T. Carpenter. Major Henry Smith, I.M.S., contributes a paper on his now well-known method of extracting immature cataract in its capsule; the discussion which ensued is a familiar example of the difference of opinion which exists on the matter. Space does not permit of further reference to many other communications of interest. The volume is fully up to the average and merits perusal by all ophthalmologists. Of still wider sociological importance is the report of the committee on ophthalmia neonatorum, presided over by Dr. Lucien Howe.

Archives of the Middlesex Hospital. Vol. XIII. The Seventh Report from the Cancer Research Laboratories. Edited for the Cancer Investigation Committee by W. S. LAZARUS-BARLOW, M.D. Cantab., F.R.C.P. Lond. London: Macmillan and Co. 1908. Pp. 208.

THIS volume opens with tabulated synopses of the post-mortem examinations and operations in cases of malignant disease in the Middlesex Hospital during the year 1907. In all 222 cases (males 64, females 158) were examined microscopically. Particulars are given of the nature of the new growth, the sites of secondary growth, and other morbid changes found in all fatal cases.

Dr. Victor Bonney describes a new and rapid triple stain, a modification of a process published by him in THE LANCET of Jan. 27th, 1906. The stains employed are methyl violet, pyronin, and orange-G. The same author contributes an important paper on the Connective Tissue in Carcinoma and in Certain Inflammatory States that Precede its Onset, which formed the subject of his Hunterian lectures.[1] Dr. Archibald Leitch records his observations on secondary malignant conversion of epithelium, as a result of which he concludes that "a carcinoma having once started from a definite focus can be added to by conversion of previously non-malignant epithelium *of the same kind* (1) in direct continuity with, (2) in immediate proximity to, and (3) within the sphere of influence of, the growing edge." Dr. L. Courtauld and Dr. A. Leitch describe the occurrence of lumina in malignant tumours and regard them as capable of separation into three groups: first, those formed by cell necrosis; secondly, those formed by irregular cell proliferation; and thirdly, those representing pre-existing channels. Dr. Hector A. Colwell gives the results of some experiments on the action of thorium and uranium upon certain ferments. The emanations from radium have been shown to exert a destructive effect upon certain digestive ferments, and Dr. Colwell finds that thorium and uranium exert a similar effect. The same observer records a research to ascertain the effects of urinary and biliary calculi upon photographic plates in the dark. He finds that both of them produce definite shadows revealed by development, the effect of gall-stones being greater than that of vesical calculi. The shadow produced by gall-stones is larger than the area of the stone in contact with the plate, which is never the case with vesical calculi. The effect is not due to uric acid, urates, oxalates, phosphates, cholesterin, or pigment as such. Dr. W. S. Lazarus-Barlow describes the results of a similar research with animal tissues. He finds that the greatest photographic effect is produced by liver, brain, and kidney, while spleen and lung produce effects in only a minority of the cases, and then only effects of low values. The photographic value of the liver increases in both sexes from infancy to the age of 55 years; after that age it increases still further in males, but undergoes a great diminution in females. At all ages except those over 55 years the photographic value of the female liver is greater than that of the male. Carcinomatous and sarcomatous material, both primary and secondary, produce effects which are about as strong as that of liver, and the values of female tissues are greater than those of male. Dr. Lazarus-Barlow contributes a second paper, which forms a preliminary communication regarding an experimental inquiry into the nature of this property. It appears not to be due to protein, fat, cells, pigment, or

[1] THE LANCET, May 16th (p. 1389), 23rd (p. 1466), and 30th, 1908 (p. 1535), respectively.

blood as such, nor is it apparently due to the ordinary non-volatile inorganic constituents. It is different from the photographic properties manifested by recognised radio-active substances on the one hand and substances such as wood on the other, although it appears to have affinities with both.

Mr. Cecil W. Rowntree, in a paper entitled a "Contribution to the Study of X Ray Carcinoma and the Conditions which Precede its Onset," gives brief details of five cases. He states that examination of the specimens showed them to be examples of typical squamous-cell carcinoma. Mr. Rowntree (whose Hunterian lecture on the same subject was published in our issue of March 20th), describes the results of the application of the rays to the human skin and to the tails of rats, and concludes that the application of the x rays to healthy tissues results in the stimulation of normal physiological processes—i.e., the growth of epithelial and other cellular elements; that a single large dose may result in an acute change resembling an ordinary burn or a destructive dermatitis; that administration for a long period ultimately results in complete atrophy of the epithelial elements and degenerative changes in the connective tissues; and that these changes ultimately lead to a state which disposes to the occurrence of carcinoma. Mr. Rowntree also describes a simple and ingenious form of apparatus for drawing from the microscope.

Dr. Lazarus-Barlow is to be congratulated on the good work represented by the researches carried out in his laboratory, all of which have for their object the acquisition of information in regard to the complex problems involved in the incidence and spread of cancer within the body, and although some of the work is highly technical in character and sometimes of little apparent utility it represents necessary pioneer labour in regard to some phase or other of this difficult subject.

Principles of Sewage Treatment. By Professor Dr. DUNBAR, Director of the Hamburg State Hygienic Institute. Translated with the author's sanction by H. T. CALVERT, M.Sc., Ph.D., F.I.C. With 147 illustrations. London: Charles Griffin and Co. 1908. Pp. 271. Price 15*s.* net.

THE disposal of excreta, once an individual consideration, is now a collective one, and the fact that concentrated populations have to be dealt with renders a system necessary which embraces the problem of sewage disposal as a whole. It is not a little interesting to reflect that in spite of the enormous attention directed to the subject by chemists, biologists, engineers, and others, the outcome of their joint labours may indicate as a possible solution of the question a biological process—which in principle amounts to the simple method adopted by the individual before a water carriage system forced itself upon the attention of communities. The disposal of excreta by shallow burial in the earth amounted to the resolution of human filth by biological agencies, and a very satisfactory method it proved so long as the agencies were not overtaxed. With the introduction of the water-carriage system the problem of the disposal of large volumes of water contaminated with fæcal matters had to be faced. This was, and is still, *the* sewage problem. The water-carriage system succeeded well enough in removing human excreta away from the house and pouring it into channels remote from habitable places, and thus far satisfied a policy of "out of sight out of mind." But this meant a discharge of sewage into the rivers and it was soon found that sewage treated in this way was far from being "out of sight out of mind," for there became evident the very unwelcome and unpalatable fact that these rivers were being dangerously polluted, and were rapidly becoming a menace to the people's water-supplies and to the public health in general. The problem of sewage disposal thus soon resolved itself into the question of the prevention of the pollution of rivers which at first had been regarded as convenient channels of disposal, channels which could sustain no pollution on account of their self-purifying powers. Rivers, no doubt, possess self-purifying powers, but the population of their banks have increased to such an extent in many instances that the river has become a stinking sewer. In short, the introduction on a large scale of the water-closet not so many years ago soon placed a strain on our rivers to which they were unequal, and sewage and factory refuse combined to destroy the beauties of sylvan streams.

The interesting story of how this spoliation has been checked, and how far further application of new and improved methods promises to bring back our rivers to their pristine beauty and cleanliness, is well and ably told in Professor Dunbar's work, for the excellent translation of which the thanks of all sanitarians are due to Dr. H. T. Calvert, whose experiences as the chief chemical assistant to the West Riding of Yorkshire Rivers Board have specially well qualified him for the task. It is doubtful whether the subject in both its historical aspects and in its relations to modern investigation has before received such thorough and comprehensive discussion. Possessing a sound acquaintance with chemical and bacteriological subjects, Professor Dunbar writes confidently and authoritatively on those problems connected with sewage disposal which involve the application of bacteriological and chemical principles. Nor has he confined his attention merely to the troubles encountered in connexion with the attempted application of these principles to sewage works in his own country, but gives also an interesting and comprehensive account of the experiences of other countries where a solution of the problem is equally urgent. In particular we may observe that the last chapter on the utility and cost of the various methods of sewage treatment should be invaluable to the officers of sanitary corporations who have at heart the needs of their own districts and who are anxious to meet these needs in the most efficient and economical way. We heartily commend the book as a peculiarly fair and impartial statement of the present position of the sewage problem.

Leçons Élémentaires de Microbiologie Générale. Par M. EMM. POZZI-ESCOT, Professeur de Chimie et de Microbiologie à l'École Nationale d'Agriculture et de Médecine Vétérinaire de Pérou; Laureat, Medaille d'Or de l'Association des Chimistes de Distillerie de France et des Colonies. Paris: Jules Rousset. 1909. Pp. 366. Price 9 francs.

THE author of this work considers, and we think rightly considers, that the science of microbiology is one in its principles and in its general laws, quite irrespective of the many various fields of study into which, in its practical applications, it may extend. Professor Pozzi-Escot holds, therefore, that a general course of bacteriology, in which the fundamental principles of the science are developed, should be equally suitable for the education of the physician, the veterinary surgeon, or the agriculturist. The present book embodies these views, and consequently, though it is founded upon lectures delivered at the National School of Agriculture and Veterinary Medicine of Peru, yet it is only in the choice of certain illustrative examples of the practical applications of the theoretical principles taught that the special nature of the course is shown or that there is any exact adaptation to the needs of the veterinary or agricultural student. This book therefore differs widely from the usual manuals of bacteriology intended for the medical student, as may be seen by the

fact that the special descriptions of the pathogenic micro-organisms, which usually constitute the bulk of such works, are disposed of in some four or five pages. The subject is viewed from the standpoint of the chemist and not from that of the pathologist, and the influence of the late Professor Duclaux seems to have strongly affected the style and method of treatment of the subject. The author explains everything, including the life of the cell itself, on purely chemical grounds, or at any rate as the result of purely chemical and physical forces, and this conception tinges the teaching of the whole book. Pathogenic action is regarded as a function of toxin production, and no essential difference is recognised, so far as pathogenesis is concerned, between those organisms which produce extracellular and those which produce intracellular toxins. A glance over the table of contents, which, unfortunately, as in so many French works, is made to take the place of an index, does not show the essential difference between the book and others of the more usual type; the regular chapters on the biology and physiology of microbes, on microscopic and cultural technique, on diastases, toxins, antibodies, on theories of immunity, are to be found, but these subjects are all treated on the principle enunciated above. The chemical views of Ehrlich are naturally welcome, but the French influence prevents any neglect of the cellular theories of immunity.

In the later part of the book (Chapter IX. *et seq.*) a more detailed account of industrial, and especially alcoholic, fermentation is given, and finally a short account of the chemical changes produced by organisms in the soil. The book is illustrated by woodcuts, many of which seem to be reproductions of rough pen drawings which contrast with the usual process reproduction of photographs. The subject is treated with the clearness of thought and style which we are accustomed to associate with French literature. The paper, type, and binding are creditable to the publisher.

LIBRARY TABLE.

Dreschfeld Memorial Volume, containing an Account of the Life, Work, and Writings of the late Julius Dreschfeld, M.D., F.R.C.P., with a Series of Original Articles Dedicated to his Memory by Colleagues in the University of Manchester and Former Pupils. Edited by E. M. BROCKBANK, M.D. Vict., F.R.C.P. Lond. Manchester: at the University Press. 1908. Pp. 246. Price 10*s.* 6*d.* net.—The custom of honouring men of mark by the publication of volumes of scientific papers dedicated to them, whether it be on the occasion of some anniversary in their lives or as a posthumous tribute of respect, is one which has much to commend it. The volume before us worthily carries out the principle involved, containing, as it does, much valuable work which if it do not ultimately prove "ære perennius" is yet well calculated to do honour to a lamented teacher. The contents of the book have already appeared in the Memorial Numbers of the *Medical Chronicle* and have been noticed in our columns; they need not, therefore, be here enumerated. The preliminary memoir gives a good account of the late Professor Dreschfeld and is followed by a list of his medical writings amounting to over 100 in all. In him Manchester has lost a skilled physician, a diligent worker in the field of medical science, and a valuable teacher.

Compte Rendu des Travaux du Ier Congrès International de Psychiatrie, de Neurologie, de Psychologie et de l'Assistance des Aliénés, tenu à Amsterdam du 2 à 7 Septembre, 1907. Rédigé par le Dr. A. M. VAN WAYENBURG, Secrétaire Général du Congrès. Amsterdam: J. H. de Bussy. Pp. 934.—The proceedings of this Congress are divided into three parts. The first section is concerned with Psychiatry and Neurology, the second with Psychology and Psychophysics, and the third with the Care of the Insane. The idea of an international congress of this character appears to have been first mooted at the Netherlands Society of Psychiatry and Neurology and to have been the offspring of an opinion that such a congress would be in the interest of the development of our knowledge of the life of the nervous system of man in all its manifestations. It was hoped that it might lead to an exchange of views and opinions at greater length and with greater facility than is possible in the more narrow limits of a section of a general medical congress. The proceedings before us afford ample testimony that the hopes of those who initiated the Congress have had a satisfactory fulfilment. The value of the several communications necessarily varies but a high standard has throughout been maintained, and we would mention as of special interest Professor van Gehuchten's paper upon Le Mécanisme des Mouvements Réflexes; Professor Dupré's paper upon the Diagnose Différentielle entre la Démence Paralytique et les autres Formes de Démence Acquise; Dr. M. M. A. Marie and Dr. Viollet's Argument en faveur de l'Origine Syphilitique de la Paralysie Générale; the papers contributed by Professor Arnold Pick, Professor von Monakow, Professor Liepmann, and Professor Hartmann upon Asymbolie, Apraxie, Aphasie; and lastly, the paper of Dr. A. Marro upon the Psychologie de la Puberté. We congratulate Dr. van Wayenburg upon the successful issue of his secretarial duties.

Medical Reports of the Central London Throat and Ear Hospital. Vol. I. London: Adlard and Son. Pp. 134. 1908. Price 5*s.*—This volume contains the following articles: the Retention of the Matrix in Operations for Cholesteatoma of the Middle-ear, and Cases Illustrating the Operative Treatment of Septic Lateral Sinus Phlebitis without Ligature of the Jugular Vein, by Dr. J. Dundas Grant; Remarks on Mastoid Operations, by Dr. Percy S. Jakins; the Operative Treatment of Nasal Sinus Suppuration, by Mr. W. J. Chichele Nourse; Clinical Cases, by Dr. P. H. Abercrombie; Cranial Complications of Otitic Origin, by Mr. W. Stuart-Low; Notes on Cases of Malignant Disease of Pharynx and Larynx, by Dr. A. Wylie; Brief Notes of Cases of Interest, by Dr. J. Atkinson; Adenoids, &c., by Dr. D. McKenzie; a Review of 30,000 Administrations of Anæsthetics for Operations on Throat and Nose, by Dr. A. B. Kingsford; and Pathological Reports, by Dr. V. H. W. Wingrave. From the above list it is evident that there is no tabular statement of cases seen during the 30 odd years which have elapsed since the opening of this hospital and the issue of Volume I. of the Reports. These may possibly be issued in a future number.

JOURNALS AND MAGAZINES.

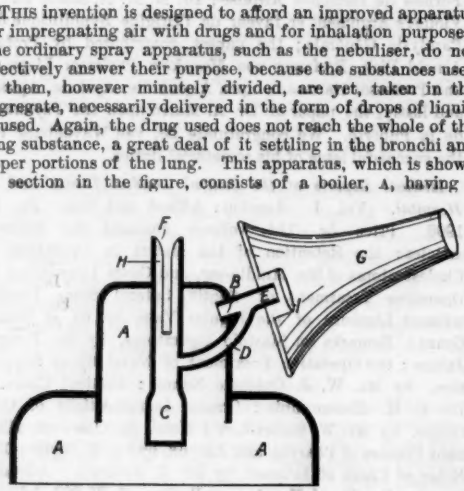
The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXVIII., No. 4, March 22nd, 1909. London: Cambridge University Press Warehouse. Price 6*s.* 6*d.*—The contents of this number are as follows: 1. The Transformations in the Phosphorus Compounds in the Hen's Egg during Development, by R. H. Aders Plimmer and F. H. Scott. 2. The Optical Properties of the Contractile Elements in Heliozoa, by Doris L. Mackinnon, B.Sc., Carnegie Scholar (1907-08). 3. Further Note on Adrenalin Isomers, by Arthur R. Cushny, from the pharmacological laboratory, University College, London. 4. The Natural Channels of Absorption evoking the Chemical Mechanism of Gastric Secretion, by J. S. Edkins and M. Tweedy, from the physiological laboratories of Bedford College and St. Bartholomew's Hospital. 5. Axon Bifurcation in Regenerated Nerves, Part II., by W. A. Osborne and Basil Kilvington, from the physiological laboratory, University of Melbourne. 6. Fatty Infiltration of the Liver in

Hunger, by V. H. Mottram, Fellow of Trinity College, Cambridge, Plates 2 and 3, from the physiological laboratories of Cambridge and Munich. 7. The Mode of Action of Specific Substances, with Special Reference to Secretin, by W. E. Dixon and P. H. A. Mill, from the pharmacological laboratory, Cambridge. 8. The Pressor Principles of Placental Extracts, by Otto Rosenheim, from the physiological laboratory, King's College, London. 9. Isolation of the Pressor Principles of Putrid Meat, by G. Barger and G. S. Walpole, from the Wellcome physiological laboratories, London. This number contains also the Proceedings of the Physiological Society for Feb. 27th, 1909.

New Inventions.

AN IMPROVED INHALATION AND DISINFECTION APPARATUS.

THIS invention is designed to afford an improved apparatus for impregnating air with drugs and for inhalation purposes. The ordinary spray apparatus, such as the nebuliser, do not effectively answer their purpose, because the substances used in them, however minutely divided, are yet, taken in the aggregate, necessarily delivered in the form of drops of liquid so used. Again, the drug used does not reach the whole of the lung substance, a great deal of it settling in the bronchi and upper portions of the lung. This apparatus, which is shown in section in the figure, consists of a boiler, A, having a



nozzle outlet, B, and a receptacle, C, in which the substance is volatilised and which is contained within the boiler but does not directly communicate with it. This receptacle has an air inlet and a nozzle outlet, D, located in apposition with the boiler outlet in such a manner that the steam issuing from the latter sucks up the vapour of the substance under volatilisation contained in the receptacle and carries it off with it. The two outlet pipes join at their distal extremities into a short broader tube and consequently end in one common nozzle, E. The steam pipe, which is uppermost, is short and straight, whilst the lower vapour pipe is broader, longer, and curved. The vapour arising from the drugs in the receptacle is assisted in its exit (1) mainly by the pressure of the current of fresh air entering through the funnel-shaped opening in the cap, F, of the tube, so that the drug vapour is kept constantly escaping and is being as rapidly replaced by fresh air; (2) also to some extent by the suction-like action exerted by the steam as it issues from the boiler tube and passes over the point of exit of the vapour tube; and (3) to some extent by the pressure of the vapour itself. The steam becomes saturated with the vapour of the drug or drugs used and is distributed through the glass trumpet G, the smaller end of the trumpet being employed for inhalation and the larger end for disinfecting purposes or for impregnating the air of the room. The said trumpet is supported upon a perforated circular platform, which is fixed in position by means of a wire loop surrounding the upper extremity of the tube H and carries four clips and a central raised ring so arranged as to support the trumpet in either position. The exact amount of water required for the boiler is gauged by a small measure which accompanies the apparatus, with which there is also a small spoon for the drug. Except for the glass funnel, the whole apparatus, which is six inches in height, is made in white polished metal. The boiler stands upon a tripod, beneath which is a small metal spirit lamp. These are not shown in the figure.

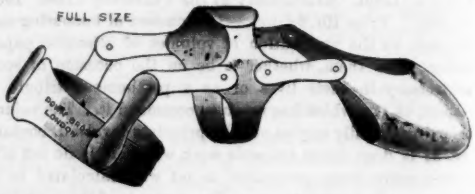
The advantages claimed for this apparatus may be briefly summed up as follows. 1. It is compact, light, and very simple to operate. 2. The steam and vapour are both driven through a common nozzle instead of through two separate nozzles, thereby making the intermixing absolute and insuring a more concentrated vapour. 3. Disinfectants used in a vaporous condition have a much more beneficial effect than when used in the ordinary way, and the apparatus fully vaporises the drug or drugs employed. 4. The drug or drugs used are quite unmixed with the vapour or the water in the boiler. 5. The consumption of the drug is very economical. 6. The drugs used may be in the solid, liquid, or crystalline form. 7. The vapour arising from the drug or drugs is so intimately intermixed with the steam that when inhaled it perfectly penetrates every portion of the lung. By the use of this apparatus the vapour, whether inhaled directly from the tube or indirectly through the air of the room, will reach every part of the lung, even the pulmonary alveoli. 8. The apparatus may be set working in a room a quarter of an hour or so previously to a patient going to bed, so that the patient will be breathing an atmosphere saturated with the drug; this is most useful and beneficial in cases of pulmonary tuberculosis, asthma, and chronic bronchitis.

The apparatus will be found useful in the treatment of rhinitis, pharyngitis, tonsillitis, laryngitis, asthma, emphysema, phthisis, hay fever, gangrene of the lung, whooping-cough, and other respiratory diseases. The following are examples of substances that can be used for evaporisation or volatilisation in the receptacle: menthol, eucalyptus, carbolic acid, lysol, thymol, mercury, creosote, terebene, stramonium, lobelia, or any combination of these drugs.

A. G. WHITEHORNE-COLE, M.R.C.S., L.R.C.P.
Brighton.

METAL FINGER GUARD FOR USE AS DIRECTOR.

SOMETIMES during surgical operations it is very convenient to cut down upon the finger as a guide. When, for instance, in a septic peritonitis following perforated gastric ulcer it is desirable to drain the loins or pelvis the most convenient way of making a counter opening is to cut down from without upon the forefinger inserted in the original wound, because the finger can feel whether anything is in the way or not. If an instrument is inserted for this purpose it may easily involve a piece of intestine in the counter-opening. But if the gloved finger be used unguarded counter puncture has to be made carefully and deliberately lest the glove and, more serious still, the finger of the surgeon beneath it be cut. Again, a large



abscess may be pointing and be opened in front of the thigh. It is desired after opening it to make counter punctures for better drainage at the sides. The finger is again the most convenient guide, because it can feel exactly the most dependent point of the abscess cavity. Examples could easily be multiplied and will occur to every surgeon. To protect the finger when thus used as a director I have had the finger guard, as depicted in the accompanying illustration, made for me by Messrs. Down Bros., and have found it very useful. It allows of as free flexion of the finger as if the latter were unguarded and it can be cut down upon straight away. When used inside the abdomen the forefinger, encased in the finger guard, and the middle finger are inserted together. The latter feels that nothing is in the way, and the guarded forefinger is then cut down upon at once with a single stroke of the knife. The instrument should be made to fit the finger of the surgeon using it.

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THE LANCET.

LONDON: SATURDAY, APRIL 10, 1909.

An Imperial Bureau of Anthropology.

MOST of our readers, and especially anyone who has observed the success which has attended the foundation of schools of tropical medicine in this country, will appreciate the efforts now being made by leading British anthropologists to establish an Imperial Bureau of Anthropology. Schools of tropical medicine confer a double benefit; they not only fit medical men to begin work at once in a new sphere of disease, but they have also been the direct means of a rapid advance and wide diffusion of useful knowledge and fresh discovery. By the foundation of an Imperial Bureau of Anthropology it is hoped that those who enter the Indian, Colonial, Egyptian, or Consular services, whether in political or medical capacity, may have opportunities of preparing themselves for their new conditions of life and work similar to those at present enjoyed by medical men proceeding on tropical service. At such a bureau the newly appointed medical officer, even if delegated to a remote tribe or people, would find, as would the political cadet, all that is known of the language, laws, religion, customs, commerce, physical characters, and diseases of the population whose affairs have to be administered, and would also receive instruction as to the best means of increasing by further observation the available stock of knowledge. Never before in any period of the world's history has a nation possessed our present opportunities of gathering up and systematising the tangle of facts and guesses relating to the physique, the lives, and the habits of primitive races. That is the task which the founders of the Imperial Bureau have set before them, but so far they have failed to obtain official recognition.

A few weeks ago a deputation consisting of Professor WILLIAM RIDGEWAY, professor of archæology in the University of Cambridge and President of the Royal Anthropological Institute of Great Britain and Ireland; Sir RICHARD TEMPLE, who has been, like his famous father and namesake, a highly distinguished Indian official and who is also an authority on Indian ethnology; Sir EDWARD T. CANDY, late a judge of the Indian High Court; Sir HARRY JOHNSTON, of Uganda fame and a trustee of the Hunterian Museum; Mr. S. H. BUTCHER, M.P.; Mr. HART DAVIES, M.P., and other men of high standing, waited on the PRIME MINISTER and presented a memorial urging the Government to establish such a bureau. All they asked for by way of a commencement was official recognition and the modest annual subsidy of £500, the Royal Anthropological Institute offering to supply the necessary accommodation and library. The PRIME MINISTER'S reply was unfavourable, and also, in our opinion, not wholly just. While admitting "that anthropology was not only an important but an indispensable branch of knowledge, not merely for scholars but for persons who were going to undertake in an Empire like ours—whether in India or the Crown colonies—the work of administration," he held out no hope of financial support because "there were 50 or 100—certainly 50—institutions and societies all carrying on most excellen work and founded on a voluntary basis, and all of which could contend with great plausibility that their efficiency and comfort and convenience would be greatly increased if an annual subvention were granted to them." For the excellent service it offered to undertake the deputation was turned away not only empty-handed but with the suggestion that it had sought help under false pretences. It is not necessary to guess what would have happened to such a deputation in Germany or France: its beneficent objects would have been perceived, and sympathy certainly, and probably a subsidy would have been offered at once. Too often the methods of foreign governments are cited as the standard which our statesmen should copy, and those who protest in their patriotism that they are a little tired of such futile comparisons are often justified. But in scientific affairs, as in education of a technical character, our insular way, which has always been to depend on voluntary effort, implies, we think, too great a reliance on the generosity and sagacity of a few. The Imperial Bureau of Anthropology will succeed in all probability through the work of enthusiastic individuals, and the government of the country will reap all the benefit without taking any of the responsibility. We are glad to learn from private sources of information that officials who stand high in the Indian and Colonial administrations are warm advocates of the scheme and are likely to afford it official and financial support. Germany we believe, spends about £10,000 a year in having the work done which the Imperial bureau has vainly offered to do for exactly 5 per cent. of that sum. It is, however, to the much and perhaps in some respects justly abused Belgium administration of the Congo Free State that we must turn to see an Imperial Bureau of Anthropology really at work. The Belgian Minister of Education is its official head. At the present time it is issuing a series of ethnological monographs on the various tribes which inhabit that vast state. The monograph on the Basongo tribe, issued in 1908, runs into 557 pages. It commences with a general introduction to the present-day knowledge of the tribe and of the Europeans who discovered and described them; then follows a complete list of the literature dealing with the tribe; all that is known concerning the geography of their country, of their psychology, physique, dress, food, houses, villages, occupation (hunting, fishing, agriculture, pottery, carving), religion, fetichism, language, amusements, society, laws, government, marriage, and diseases. The knowledge thus codified is not only of great service to those whose special study is primitive man but of even greater value to the young official when he first sets foot on tropical soil. In support of this fact we cannot do better than quote Professor RIDGEWAY'S words when introducing the deputation whose objects failed to appeal to the PRIME MINISTER.

"Several of our most distinguished Indian and Colonial administrators have pointed out that most of the mistakes made by British officials are due to their ignorance of the habits and customs of the natives. It has been in the past an axiom of British politicians that in the English constitution and in English law there is a panacea for every political and social difficulty in any race under the sun. The fundamental error in this doctrine is the assumption that a political and legal system evolved during many centuries amongst a people of North-western Europe largely Teutonic, and that, too, living, not on the mainland, but on an island, can be applied cut and dried to a people evolved during countless generations in tropical or subtropical regions with social institutions and religious ideas widely different from those of even South Europeans and still more so from those of Northern Europe. We might just as well ask the Ethiopian to change his skin as to change radically his social and religious ideas." This is the voice of a statesman.

The institution of an Imperial Bureau of Anthropology is a matter of particular importance to medical men. How many there are now abroad amongst subject and native races who would willingly carry out a series of most useful observations if only they knew in what direction they should turn their spare energies and interests. How many there are now returned home who recognise the opportunities they missed because they did not have the key to the various customs and practices they saw amongst the natives around them, or because they believed that all they saw was already well known. None are so well qualified from their education and none have so many opportunities of making anthropological observations as medical men. To them an Imperial bureau would be of the greatest utility. The interest of medical men will be the more readily enlisted in the scheme of such a bureau, seeing that it is intended, not only to embrace a study of primitive races, but to collect and systematise all pertaining to the physical constitution of the British race both at home and abroad. The question as to whether or not physical deterioration of the race is taking place has still to be answered. All at present is guess-work. A physical census of the present generation must be made to obtain a basis by which future observations may be measured. The medical examination of school children, which Mr. ASQUITH estimates must cost the country £260,000 per annum, will provide most useful data for this purpose. But the necessity of a census of the national physique will not thereby be rendered less urgent. The Universities of Cambridge and Oxford have established boards of anthropological studies, with the power of granting diplomas to those who have qualified by studies under their direction in prehistoric and historic anthropology and ethnology (including sociology and comparative religion, physical anthropology, and psychological anthropology). While the students at Oxford and Cambridge are thus provided for, no opportunities are given to students in London. Yet in London the means for study are perhaps the finest in the world. The collections in the British Museum and in the Museum of the Royal College of Surgeons of England, the libraries of the Royal Anthropological Institute and Geographical Society provide all that is needed, and more, for the education of students of anthropology. It was hoped by many that the University of London would establish a board of studies similar to that of the older universities, but when the attempt was made some years ago the board which resulted was not one in anthropology but one which has failed to attract London students—viz., the board of human anatomy and morphology. It is proposed that the Imperial Bureau of Anthropology should be empowered to grant diplomas to its students—a boon which would be appreciated by students not only in London but throughout the country and colonies.

The Vaccine Treatment of Acne.

MANY of the diseases of the skin are especially suitable for the accurate estimation of the value of new methods of treatment, for the daily variations are open to examination. Should the inflammation increase, the fact is at once patent, for the redness and the dilated vessels are visible, and there is no need to employ physical methods to ascertain the fact; on the other hand, should the inflammation subside, the diminution of the vascular supply of the part is at once evident. Even the amount and character of the exudates from the vessels of the skin can be appreciated in a way impossible with diseases of other and deeper structures. One of the newest and most valuable methods of combating microbial disease is by the administration of vaccines, and some of the diseases of the skin have proved very amenable to this mode of treatment. The vaccine treatment has yet another value; it may serve to determine etiological questions. If a patient is suffering from a disease in which the presence of a micro-organism has been detected, the effect of the employment of a vaccine may suffice to determine whether that micro-organism has or has not a share in the production of the disease. Moreover, when two organisms are found to be present in many cases of an affection, the administration of a vaccine prepared from one or other of these microbes may indicate the relative importance of the two microbes as etiological factors.

In the present issue of THE LANCET appears a paper by Dr. ALEXANDER FLEMING, of St. Mary's Hospital, on the Etiology of Acne Vulgaris and its Treatment by Vaccines. The cause of acne has been discussed for many years, but without the formation of any very definite ideas as to its real mode of production; it is sufficient to read the long list of causes mentioned in most of the text-books to recognise that the essential cause is not among them, although and doubtlessly each of them may occur in one way or another as an etiological factor. UNNA in 1893 was the first to demonstrate a special bacillus in cases of acne and he named it the acne bacillus. He found it constantly present in sections and smears of comedones and acne pustules; moreover, it was the only organism which could always be found, and it was present in greatest number in the deeper parts of the comedo. Four years later SABOURAUD described the bacillus as occurring in sebaceous plugs of seborrhœic skins, and he claimed that it was the cause of seborrhœa and of alopecia areata. It is probable that this inclusion of alopecia areata in the effects of Sabouraud's bacillus retarded the recognition of its etiological value in seborrhœa

and acne, for the clinical characters of alopecia areata are sufficient to exclude it from a group containing the two other diseases. The general feeling among dermatologists with regard to Sabouraud's bacillus was that, though it was possible that it was the cause of seborrhœa, it was not proved that it had anything to do with alopecia areata or with acne. In 1899 GILCHRIST of Baltimore described a bacillus constantly found in acne, and in one-third of the cases it was obtainable in a pure culture from acne lesions. He named the organism "bacillus acnes," and looked upon it as differing from Unna's bacillus, but most of those who have examined the question agree in thinking that Gilchrist's bacillus acnes is identical with Unna's acne bacillus and with the bacillus described by SABOURAUD. The absolute regularity with which the bacillus can be found in cases of acne vulgaris suggests an etiological relationship between them, but mere coincidence of occurrence cannot prove that the bacillus is the cause of the disease. However, the opinion is distinctly gaining ground that the bacillus is the *causa causans* of acne, although there may be other etiological factors. A further problem awaits solution. Even if it be admitted that the acne bacillus gives rise to the comedo, is it also the cause of the pustules which are the almost invariable accompaniment of a case of acne? Can the acne bacillus cause suppuration by its own unaided efforts, or does it need to invoke the aid of ordinary pyogenic organisms to give rise to acne pustules? Opinions differ. UNNA considered that the bacillus was the cause of the pustules, for in his opinion the histological characters of the pustules differed from those found in ordinary staphylococcic pustules. SABOURAUD thought that the suppuration was due to a secondary infection with pyogenic organisms. GILCHRIST found that even from the pustules a pure culture of the bacillus acnes could be obtained in a good proportion of the cases examined, and therefore he considered that the pustules as well as the other lesions of acne were caused by the bacillus. WHITFIELD from his own researches concluded that the comedo is caused by the acne bacillus, but he looked upon the pustule as due to a secondary staphylococcic infection. In this position the matter rested; without some fresh light, some fresh method of investigation, it seemed to be impossible to give a decisive answer to either question: first, whether the acne bacillus causes the comedo, and secondly, if it does cause the comedo, does it also cause the pustule?

The answer to these questions may be supplied by the vaccine method of treatment, and, if so, it is to be found in Dr. FLEMING'S paper to which we have already referred. In the first place, he concurs in the almost invariable existence of the bacilli in the comedones, and he finds that they are also almost always present in the pustules. The bacilli grow with difficulty on artificial media, but in many cases a pure culture was obtained by Dr. FLEMING even from the pustules. So much for the constancy of the organism. A pure culture of the bacillus proved capable of producing a folliculitis on the forearm of a susceptible person. In five days definite pustules appeared, and when the pus from them was examined only the acne bacillus could be seen. Further evidence is to be found in the fact that the serum of patients afflicted with acne agglutinates the bacillus in some cases. Sir ALMROTH WRIGHT showed in 1902 that carefully prepared vaccines derived from the infecting organisms produce a definite beneficial effect. Dr. FLEMING'S chief contribution to this important subject is the showing that a vaccine prepared from the acne bacillus alone, or in certain cases in combination with a staphylococcus, is capable of effecting a remarkable improvement in the condition. In most cases of acne a stock vaccine of the acne bacillus gives extraordinary results when employed in suitable doses; an excessive dose is followed by a negative phase and the outbreak of a fresh crop of pustules; when the dose is reduced sufficiently improvement follows. In some cases it appears to be necessary to prepare a vaccine from the acne bacillus present in the individual patient, but this is exceptional. From a consideration of these facts, described in detail in Dr. FLEMING'S paper, we are justified in concluding that the acne bacillus is the essential causative factor in acne vulgaris, and that by its own unaided efforts it is capable of producing a pustular eruption, but that in some cases the suppuration may also be caused by a secondary staphylococci infection. The investigation conducted by Dr. FLEMING is very complete, and in our opinion practically settles a question which has for many years disturbed the dermatological world.

Immunity and Immunisation.

"THE physician of the future will be an immunisator." Such is the text or quotation—perhaps in accordance with the fashionable terminology of the day we ought to say "auto-quotation"—which adorns the title page of the newly issued volume of collected studies by Sir A. E. WRIGHT and his fellow workers in the field of immunity,[1] the appearance of which may serve as an occasion for reviewing the progress made in recent years in our knowledge of the mechanism of resistance to infective disease and of the therapeutic measures founded upon it. In one sense, indeed, the statement quoted above is but a truism, for the more we learn that diseases are due to the action of invading germs, the more it necessarily follows that the labours of the physician must be directed to strengthening the resistance of the body against these parasites; and whether he pursue this end by rest and careful dieting or by the methods more recently introduced for directly stimulating the defensive mechanism he is equally an immunisator or cultivator of resisting power. But we shall not be mistaking the meaning of the distinguished editor of the work in question if we take his dictum in the narrower sense that the physician of the future will operate mainly by means of vaccines and allied remedies. It is therefore to this aspect of the question that our attention must be directed.

Our knowledge of the means by which the body resists the attacks of parasitic germs was inaugurated by the work of METCHNIKOFF on the phagocytic powers of the leucocytes,

[1] Studies on Immunisation and their Application to the Diagnosis and Treatment of Bacterial Infections. By Sir A. E. Wright, M.D., F.R.S., Director of the Department for Therapeutic Immunisation, St. Mary's Hospital, &c. London: A. Constable and Co., Limited. 1909. Pp. 490. Price 16s. net.

work which gave rise at first to very lively controversy. The discovery made by BEHRING, ROUX, and KITASATO that the poisons of certain bacteria are neutralised in the body by antagonistic bodies elaborated in response to their action, and the observations of PFEIFFER and others on the destruction of pathogenic germs by means of the serum of the blood, seemed for a time to throw the phenomena of phagocytosis into the background, but recent investigations have once more brought METCHNIKOFF'S views into prominence. The discoveries of the French school that the serum in some way facilitates the process of phagocytosis have been extended by the fascinating researches of Sir A. E. WRIGHT, who has given to these properties not only a local habitation in certain hypothetical bodies but has also bestowed on the latter the attractive name of opsonins. Thus, while in the case of certain germs, of which those of diphtheria and tetanus are the types, the main resistance of the body is effected by antitoxins, and in a few other instances, notably in the case of the bacilli of cholera and enteric fever, destruction of the parasites is effected mainly by substances which directly destroy the organisms, in a large number of cases immunity appears to be due in great part to the interaction of serum and leucocytes, the former in some way preparing the bacteria for ingestion by the latter. Such is the mode of resistance, so far as is at present known, to the staphylococci and allied germs, to the bacillus of tuberculosis, and to many other pathogenic organisms. In enumerating, however, the antitoxins, opsonins, and bacteriolysins of the blood we have probably not exhausted the number of bodies which take part in immunity. If we disregard the agglutinins, which presumably take some part in the process of destruction of bacteria, we can yet hardly doubt that, at all events in the case of those germs which give rise to a local form of disease, the cells of the tissues themselves take part in the process of resistance, while some of the endothelial cells appear to possess powers of acting as phagocytes. Of the factor of cellular resistance it would seem that little or nothing is at present known. A still different property of the serum to which attention has recently been directed in our columns by Dr. F. L. GOLLA[2] is its power of inhibiting the action of trypsin. It is too soon, however, to speculate far as to the possible influence of this property in producing immunity.

With regard to the other bodies mentioned—hypothetical bodies, it is true, since no one of them has ever been isolated, though we know that some of them can be precipitated along with certain of the albuminous constituents of the blood—they are either naturally present in the serum or are poured into it in response to the action of the parasites and their poisons. It is upon this last phenomenon that modern methods of immunising treatment are based, since it is possible by injecting harmless doses of dead germs or of their toxins to increase the quantity of immunising bodies present in a living animal, and thereby to create an artificial resistance which may serve either as a prophylactic against the attack of the parasite in question or may enable the body when already infected to contend successfully with the invaders. The results obtained in some directions are most encouraging. In cases of local affection due to staphylococci a very useful weapon has been added to our armoury, and in tuberculosis marked good may be done in suitable cases by means of the various forms of tuberculin.[3] In other chronic infections we may reasonably hope that equally important results will be obtained. But the question of the value of vaccines in acute infective diseases is also one of great interest. It would seem at first sight that when the pathogenic bacteria have invaded the blood stream and have thus been spread throughout the whole system it would be worse than useless to inoculate an additional dose of the causal organism. On the other hand, it has been suggested that the blood stream is not a favourable medium for the formation of antibodies, and that the introduction of a dead culture into the subcutaneous tissue and thereby into the lymphatic spaces may give rise to increased resisting powers. On this point the evidence is not at present complete, but attempts have been made both in enteric fever and in pneumonia to influence the course of the disease by this means and some favourable results are recorded.

No part of Sir A. E. WRIGHT'S work has been more interesting than that connected with the attempt to measure the degree of immunity existing in a patient by an estimation of the opsonin-content of the blood serum. A most important change in procedure, fraught with benefit to innumerable patients, has resulted from this study—namely, the use of much smaller doses of tuberculin than had previously been employed, as Dr. A. J. LANDMAN points out in another column this week. The right value of a remedy which had fallen into undeserved disrepute owing to mistakes in the mode of its administration has now been established, and the prospects of relief or cure in suitable cases are definitely increased. Whether the opsonin-content can in reality be held to constitute a true measure of the total resistance may be open to doubt, since the complex nature of the factors at work in immunity is obvious. When it was first discovered the agglutinating power of the serum was thought to afford such a criterion, and it undoubtedly did in many instances correspond to some extent with the patient's resistance, yet its value as such is now doubted, and it may be that the opsonin-content of the serum will equally be found wanting. More important at the present stage of our knowledge is the doubt that has been thrown on the accuracy of the methods available for estimating this element in immunity. Apart from the possible influence of the personal factor in the process of enumeration of ingested germs it has been shown that successive series of leucocytes acted on by the same serum and fixed on the same slide may reveal serious divergencies in their phagocytic action, and a momentous source of error may thus arise unless an impracticable number of these cells are counted, while, as Dr. LANDMAN states, the complexity of the method is in itself a bar to its use by any but experts. It can hardly be denied that at the present time less attention is being paid to such estimations than was the case a short time ago. Perhaps,

[2] THE LANCET, April 3rd, p. 968.

[3] THE LANCET, March 14th, 1908, p. 802, and March 20th, 1909, p. 854.

however, the pendulum may have swung too far in the negative direction, and time may yet evolve an improved method of procedure and rehabilitate this test of immunity. In any case, a most interesting field of research has been worked, and the brilliant observations made by Sir A. E. WRIGHT and his pupils, while they have thrown lustre on British science, have opened a new chapter in the history of medicine.

Annotations.

"Ne quid nimis."

ALCOHOL IN HOT-CROSS BUNS.

THE decline in the sales of the hot-cross bun, which appears to be admitted by the baking trade, is of little dietetic import seeing that, except for the addition of spice and currants, the hot-cross bun is practically bread and is similarly prepared. Fast nowadays has for the most part yielded to feast and there is no office left for the Good Friday bun. The discipline of its consumption no doubt offered in bygone days moral and physiological advantages, but the times have changed and the bun has changed in them. There is one interesting point in regard to the composition of a sample hot-cross bun which we have brought to light in a recent analysis, and that is that it contained quite an appreciable quantity of alcohol. Thus a bun weighing 2½ ounces was found to contain 7·2 grains of alcohol, or 0·68 per cent. This amounts to the quantity of alcohol contained in a third of a fluid ounce of light beer, so that 20 buns would contain approximately as much alcohol as a tumbler of beer (8 ounces). This quantity, though appreciable, is of course very small and such as need give no concern to the anti-alcoholist. The fact is that the hot-cross bun, like bread, is a partially fermented food, yeast being used to make it light, and the normal outcome of this process is a little alcohol. It is, however, somewhat surprising that the alcohol formed is not completely dissipated by the heat of the oven, but doubtless owing to the tenacious character of the dough some of the alcohol is imprisoned. The albumin glaze on the exterior of the bun may serve also to retain the alcohol. Good buns, however, if need be, can be made without yeast and a strictly teetotal bun obtained. The complete analysis of the bun compared with bread is of interest, the results being as follows:—Water, 30·82 per cent.; alcohol, 0·68 per cent.; starch, 52·63 per cent.; protein, 9·12 per cent.; fat, 5·40 per cent.; sugar, 0·85 per cent.; and mineral matter, 0·50 per cent. Bread contains 10 per cent. more water, traces of alcohol, about the same amount of starch, 3 per cent. less protein or nitrogenous substances, 4 per cent. less fat, and approximately twice the amount of mineral salts. Owing chiefly to a smaller proportion of water, the bun, weight for weight, contains a rather larger amount of nutritive substances than bread, the occurrence of a relatively large amount of fat, due to the addition of butter in the bun, rendering it a fairly complete food containing reparative and energising materials alike.

THE MEDICAL INSURANCE COMMITTEE.

A MEETING of the Medical Insurance Committee was held at the offices of the British Medical Association on Thursday, April 1st, when the report from the secretary and agent showed that all the business done by the Committee was progressing satisfactorily if slowly, and that especially the undertakings as to life insurance had substantially increased. The renewals of policies under employers' liability have involved a great deal of work, at least 75 per cent. requiring some change in the conditions of the policies, and a voluminous correspondence was the inevitable accompaniment. The total number of policies dealt with represent 2540, of which 2480 are running. As a result £160 have been distributed among the insurers, who have also been relieved by the agency of all possible trouble and inconvenience. Allowing for sundry liabilities, but not for managerial expenses, a small surplus of £52 remained as the net result for the working of the year 1908. The Committee are not discouraged by the modest nature of their success and propose with the coöperation of the Guardian Assurance Company to continue the work. Offers which have been made to them by other offices than the Guardian have let them see clearly that medical insurance has a future before it the importance of which will be great entirely according as many medical men avail themselves of a united scheme. We may again remind our readers that communications on this subject may be made to Mr. Guy Elliston, general secretary of the British Medical Association.

THE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

WE are pleased to offer again our congratulations to Sir Richard Douglas Powell on his re-election as President of the Royal College of Physicians of London. The very large majority by which the election was carried proved the continued confidence and approbation with which he is regarded by the College. This is all the more significant in that important matters are under discussion, notably the negotiations which are proceeding in connexion with a scheme to render a London medical degree reasonably accessible to all those students who are pursuing their studies in London, an event which Sir Richard Douglas Powell has truly at heart. The sagacity and tact which have always characterised his actions will be particularly valuable at the present juncture, and we consider that the College evinced sound judgment in again electing him to the office which he has so ably held for the past four years.

CANNIBAL MEDICAL LITERATURE.

IN an annotation which appeared in THE LANCET of March 20th the Battaks (pronounced "Battas") of Sumatra were described as low savages addicted to cannibalism. But it is only fair to these despised people to point out that they possess a literature, and that their literature is medical. The Battak manuscripts, of which there are a few specimens in the Marsden library at King's College (University of London), are curious examples of the most primitive form of book. In his classic work on Sumatra, published in 1811, William Marsden thus refers to this literature of cannibals: "Their books are composed of the inner bark of a certain tree, cut into long slips, and folded in squares. Their contents are little known to us. The writing of most of those in my possession is mixed with uncouth representations of scolopendra and other noxious animals and frequent diagrams which imply their being works of astrology and divination." M. Claine, reporting in 1892 on a Battak MS., of which the late Dr. G. W. Leitner reproduced a copy in photogravure in the *Imperial Asiatic Quarterly Review* (1892), describes it as referring to some plague. The book was presented to Dr. Leitner's much-abused Oriental Congress at the time, and was submitted by him to Pundit Janardhan, an eminent Vaidak physician of Lahore. The writer of this article was at the same time busily employed in unearthing the Battak manuscripts in the Marsden Library at King's. These, with Captain Cook's original diaries and other treasures of price, were soon found in a large box, which had never been lost, but which had suffered neglect owing to its very obviousness. In no

long time the learned Pundit doctor of Lahore replied in the pages of Dr. Leitner's *Review*. We in England had been possessed by the idea that the Battak bark books contained a definite adumbration of the theories of Pasteur. The little twiddles, painted in some black pigment on the bark, were held to be what were then called "germs." Dr. Janardhan entirely agreed with us, but he pointed out that the Battak illustrations were borrowed from ancient Hindi books, as is often the case where primitive authors are at a loss to find artistic comments on their ideas. He declared, in reference to the ancient Sanskrit medical books from which the Battak cannibals copied their illustrations with an infinite neatness: "Whatever people may choose to say about the discovery of bacilli and microbes as a new thing (in 1892) in medical science, it is quite evident that the principle of this discovery was many ages ago given in our Sanskrit books of medicine; and the details, elaborated and tabulated, can be produced to prove this statement." But the Sanskrit illustrations in question really refer to worms, not to germs. In India diseases are often traced to a "Kira" or worm, and the Battak pictures really depict a number of these. Two very large ones, with fangs and antennæ, are supposed to produce respectively cholera and diarrhœa and phthisis. Another smaller worm is held to set up leprosy. Many worms are held to be invisible. The orthodox number of worms is 20. Their excess in the human being produces certain diseases, their defect certain others. They are mentioned in all the old books of Hindi medicine. It is curious to note that leprosy arises from a worm, in the opinion of the Sanskrit medical authorities. But from the brutal Western point of view a worm is *not* a microscopic germ. Nor are we inclined to be cajoled into a bacterial theory of the origin of disease having been familiar to the ancient Hindoos from such evidence as the learned Pundit has so far put before us.

THE OPERATIVE TREATMENT OF FRACTURE OF THE BASE OF THE SKULL.

THE current treatment of fractures of the base of the skull is purely expectant—rest, purging, and the application of cold. In the *Intercolonial Medical Journal of Australasia* Dr. D. Murray Morton, surgeon to St. Vincent's Hospital, Melbourne, has called attention to the value of operative treatment in many cases which seem hopeless. The immediate danger in severe head injuries is principally due to compression from extravasated blood. Harvey Cushing in Keen's "System of Surgery" admirably states the position thus: "In any serious cranial injury in which unconsciousness has been present from the first, subdural bleeding is taking place either from the fracture itself or from some laceration of the brain." With regard to basal fractures he says: "One cannot hope to disclose the point of injury or to check the oozing which may be taking place, but the chief indications in the face of compression symptoms are to bring relief by decompression and to furnish a means of escape for the extravasating blood. When the pressure phenomena have not advanced to the point of seriously implicating the bulbar mechanism expectant treatment may be resorted to. If, however, there is evidence of failure in this mechanism it is inadvisable to delay intervention." Dr. Morton advises that every grave head injury, and especially basal fractures, should be placed under close supervision, and that whether fracture of the base is diagnosed or not a decompressive operation should be performed if there are serious or increasing symptoms of compression. In the absence of symptoms indicative of hæmorrhage from the middle meningeal artery or of other focal symptoms, and probably in all cases of fractured base, the occipital route is recommended by Cushing and gives the easiest and safest access. It affords efficient drainage and a substantial buttress of muscle to prevent hernia cerebri. The following case is an example of the advantages of prompt operation. A clergyman was admitted to St. Vincent's Hospital on Sept. 23rd, 1908. He had been knocked down by a large motor-car and was picked up unconscious. The temperature was 98° F., the pulse was 80, good, and regular, and the respirations were 22 and easy. Across the right upper eyelid was linear extravasation and there were some abrasions of the nose. In the left occipital region was a contused wound with considerable swelling around it from extravasated blood. The pupils were equal, active, and moderately contracted. The knee-jerks were increased. Vomiting, with traces of blood, occurred soon after admission. The pulse gradually became slower and irregular, falling as low as 54 about half an hour after admission, and the patient was lapsing into coma. The head was shaved and the scalp was sterilised. The occipital wound was freely enlarged and a linear fracture of the skull was found and traced upwards towards the vault on the left of the middle line and downwards towards the foramen magnum. The skin and muscles were freely reflected from the occipital bone and the fracture was found to increase in width towards the base and to exude dark blood freely. As the trapezius and complexus muscles were reflected small scraps of brain tissue were found in their substance. A small trephine was applied over the horizontal table of the occipital bone with its inner margin at the fracture and a disc of bone was removed. The dura mater was opened and deeply blood-stained cerebro-spinal fluid flowed freely. The cerebellum was contused and lacerated. A small rubber drainage tube was cut longitudinally and passed with the resected aspect downwards towards the foramen magnum. The wound was closed with silkworm gut and horsehair sutures, and the tube was fixed by a suture. During the operation the pulse improved in volume and became steadier. At the conclusion of the operation the extravasation of the right upper eyelid, which at first resembled a pencil mark, had increased to an ecchymosis of about the size of half a walnut. It was inferred that the fracture passed from the foramen magnum through the right middle fossa and then ran forwards in the anterior fossa into the orbital plate. On recovery from the anæsthetic the patient was restless and irritable but slept in the intervals. He was able to speak and insisted that he should be up and at his work. In the evening the temperature rose to 100·2° but afterwards was normal. There was copious discharge of blood-stained cerebro-spinal fluid for three days and then of clear fluid, and recovery ensued.

THE INTELLECTUAL ACHIEVEMENTS OF THE BLIND.

THREE months ago the centenary of the birth of Braille, the inventor of special type for the use of the blind, was celebrated. Braille had been blind from the age of three. In 1828 he was appointed professor in the Institution Royale des Jeunes Aveugles. The pioneer in the education of the blind by development and training of the sense of touch was Valentin Haüy, who founded a school in 1784. For reading purposes he used only ordinary type printed in relief. Reading by this method was a tedious process and no greater benefit was ever conferred upon these afflicted people than the invention of the Braille system. How great a success it has been and how much it is appreciated is shown by the fact that the Bibliothèque Braille now contains over 25,000 volumes. An instance of extraordinary intellectual development and achievement in spite of loss of sight,

hearing, and speech is found in the now well-known case of Helen Keller. Another noteworthy achievement by a blind young man is a book in three volumes, comprising 1250 pages, entitled "Les Sources et l'Évolution des Essaies de Montaigne," by Pierre Villey (Paris: Hachette, 1908). The author has been blind since the age of four and a half years. At the age of eight he commenced the study of Braille type. He was educated at the Institution Nationale des Jeunes Aveugles in Paris and at the École Normale Supérieure. Attracted to the study of history and literature, he undertook the important task of trying to arrange Montaigne's "Essays" in chronological sequence and to trace the thoughts and allusions, so far as these were borrowed, to their original sources. With the help of a secretary he wrote out the whole of the essays in Braille type. With these 20 volumes at his disposal he compiled three annotated indices of the chief ideas presented by the author, the characteristic images, expressions, and so on, and the historical examples and anecdotes. He then obtained and had read to him all the possible contemporary sources of Montaigne's inspiration. That the result is a worthy contribution to literary history is shown by an appreciative criticism in the *Revue des Deux Mondes* of Feb. 1st last. The number of the same review of March 15th contains an interesting article by M. Villey upon Intellectual Work amongst the Blind which will well repay perusal by those who are concerned in the alleviation of these afflicted people.

EPIPLOITIS FOLLOWING THE RADICAL CURE OF INGUINAL HERNIA.

IN the *New York Medical Journal* of Feb. 6th Dr. C. Greene Cumston has described an unusual sequel of the radical cure of inguinal hernia—namely, epiploitis. The operation was performed on a man, aged 24 years, for right inguinal hernia. The sac contained only omentum, a large mass of which was resected and ligatured with kangaroo tendon. The operation was easy and rapid, but on the following day the abdomen was distended and the patient complained of pain. On account of the distension respiration was somewhat difficult, although it was unaccompanied by pain. On the third day the patient was very restless, but the temperature was not elevated. The bowels acted after administration of an enema, but the distension continued. The condition remained about the same until the ninth day, when the temperature rose to 102°F., and the abdomen became still more distended and tender on percussion. The tongue was dry and the patient was more restless. A swelling was felt in the right hypochondrium, extending from the costal border to the iliac fossa and most marked under the cicatrix of the operation wound. The latter was in perfect condition and the stitches were removed. The swelling was elongated in shape, with its long axis running vertically from above downwards, and appeared to be in direct contact with the abdominal wall. It felt resistant and immovable, and was dull all over. It was painful and the pain was increased by palpation. The abdomen was still distended and the constipation was obstinate in spite of the administration of high enemata. The temperature was 104° and the abdominal facies was present. Epiploitis was diagnosed. Ice-bags were placed on the abdomen and a pill containing two centigrammes of colloid silver was given four times daily. At the end of 12 days the temperature reached normal. The bowels began to act normally and the pain and swelling diminished. The colloid silver was continued for three weeks. Seven weeks after the operation the patient was discharged in perfect health. There are several forms of epiploitis. There is a benign form which shows itself by slight tumefaction and very little pain and from which recovery is rapid under rest in bed. Occasionally epiploitis manifests itself by the ordinary symptoms of intestinal obstruction. Sometimes suppuration occurs and manifests itself by a high temperature and the presence of an intra-abdominal fluctuating mass, and symptoms of intestinal obstruction (abdominal distension and fæcal vomiting). In such cases secondary laparotomy and treatment of the condition present, such as opening and draining an abscess or breaking down adhesions, which cause intestinal obstruction, may be necessary.

THE "AFTER-CARE" ASSOCIATION.

WE have before us the report for the year 1908 of the council of the After-Care Association for Poor Persons discharged recovered from Asylums for the Insane. The better known this admirable association becomes the more widely does its sphere of usefulness extend, and we note that in the year reported on 610 visits were paid, more than 4060 letters were written, and 620 interviews took place at the office of the association. A large amount of personal care is devoted to each individual case, and it is the constant endeavour of the association to find suitable work and a suitable environment for the convalescent patients to whom its care is devoted. It is a fact that is frequently overlooked that recently discharged patients are rarely, if ever, sufficiently well to resume the battle of life as if nothing at all had been the matter with them, and the result is that too often many rapidly break down again. To avoid this the association seeks to relieve the discharged patient from the worry of looking for employment and to make sure in each individual case that the work when found is not in excess of the patient's capacity. The work done by the association in this way is worthy of all possible commendation and support. We notice with pleasure that at several institutions offertories are made in their chapels in aid of the association, and we hope that by this means, as well as by the method of subscription, the association may be assisted still further to extend its field of beneficent usefulness.

PERIODIC FAMILY PARALYSIS AND EPILEPSY.

THE etiology of periodic paralysis, that condition in which a transient flaccid paralysis of a limb or limbs recurs at irregular intervals and is associated for the time with loss of all electrical reactions in the groups of muscles concerned, is still exceedingly obscure. A case was recorded as long ago as 1882 where the patient's father was also affected, and a brother was an epileptic. This same patient has been followed carefully, and the remarkable fact ascertained by Dr. Bornstein—whose paper will be found in a recent number of the *Deutsche Zeitschrift für Nervenheilkunde*—that his periodic paralysis ceased five years ago, to be succeeded by attacks of typical epileptic vertigo and other epileptic equivalents of a visual character. Dr. Bornstein reports a further case in a boy aged 14 years, mentally and physically somewhat backward, who from the age of two and a half to four years suffered from convulsive epileptic attacks with loss of consciousness. Since the age of eight he has been the subject of recurring paralyses of his limbs, appearing at highly irregular intervals, usually during the night, and lasting from a few hours to a day or a day and a half. At no time is there any loss of consciousness in these paralytic seizures. Sometimes the whole musculature of trunk and limbs is affected; sometimes the latter are more affected on one side than the other; sometimes certain muscular groups, such as flexors or extensors, are singled out. The deep reflexes are usually diminished, but the knee-jerks have always been found brisk, although there is no extensor response on stimulating the sole of the foot.

During the attacks electrical examination has revealed complete abolition of galvanic and faradic excitability in the affected muscles (cadaveric reaction), but in the intervals the electrical properties of the musculature are normal. The patient's sister is an epileptic. This association is very suggestive. The clinical picture may be explained on the theory of functional alteration in the cells of the anterior horns of the spinal cord under the influence of a toxin accumulating from time to time in the system. The facts are sufficient to indicate a definite analogy between epilepsy and periodic paralysis, which receives further support from a consideration of those cases of epilepsy in which irritative phenomena are absent, their place being taken by equivalents in the shape of sudden paralysis of one or other limb without loss of consciousness.

THE POST OFFICE SANITORIUM SOCIETY.

THE good work which is being done by the Post Office Sanitorium Society was emphasised at the second conference held on March 27th, under the presidency of Mr. J. P. Dixon, in the Onward Buildings, Deansgate, Manchester. The secretary's report, presented by Mr. G. H. Garland, showed that the membership of the society exceeded 37,000, of whom 7500 had been recruited in the last two years. Of this number 42 per cent. came from London, 51 per cent. from the provinces, 6·3 per cent. from Scotland, and 0·7 per cent. from Ireland. The number of cases dealt with was 153, and the results were entirely satisfactory in the majority of those cases which received treatment. The average length of the treatment in sanatoriums for each patient was 19 weeks six days. The treasurer's report showed that at the end of 1907 the balance standing to the credit of the society was £1569, the income from subscriptions being £3227 and the amount paid in maintenance of patients £1185. In the past year the income had increased to £3334, being an increase of £106, but the sum paid for maintenance came to £2434, being more than double that for the previous year. Notwithstanding this great increase in payments, a further sum of £423 had been added to the reserve, which on Dec. 31st last, every liability having been met, stood at £1982—a very satisfactory position. The delegates to the conference, who numbered 43 and represented 14,195 members, were warmly welcomed to Manchester by Bishop Welldon and the Postmaster of Manchester.

THE INCUBATION PERIOD OF SYPHILIS.

AN interesting research into the phenomena of the incubation period of syphilis is recorded in the *Annales de l'Institut Pasteur* of Oct. 28th, 1908, by MM. C. Levaditi and T. Yamanouchi. They find that the development of a syphilitic chancre is preceded by a period of incubation, the duration of which varies with the origin of the virus and with the animal infected but which cannot be shortened beyond a certain limit. They investigated the histological features of the primary lesion in the monkey and of a specific keratitis induced in the rabbit. The suggestion that the incubation period may be due to the occurrence of a definite cycle in the evolution of the treponema pallidum is negatived by their demonstration of typical organisms at every stage of the incubation period. They conclude that it corresponds to the slow but progressive development of lesions produced by the multiplication of the micro-organism, which is at first slow owing to defective nutrition caused partly by change of medium and partly by the local conditions being at first unfavourable to the supply of nutritive materials. As soon as the vessels and newly formed cellular elements supply the treponemata with adequate nourishment their rapid multiplication puts an end to the period of incubation. The paper is illustrated by some excellent plates showing the invasion of the tissues of the cornea by the parasite at various stages of the incubation period. It is interesting to note that the parasites show a predilection for the newly formed vessels which spread into the cornea from its margin. In like manner the growth of the treponemata in the tissues of the monkey after inoculation under the dermis with a fragment of cornea containing them was found to be intimately associated with the organisation of the piece of cornea, and the appearance of newly formed vessels was accompanied by an active multiplication of the parasites. The specific process spreads from the deeper parts towards the surface, following the blood-vessels in their course. The appearance of the ulceration of the chancre coincides with the localisation of the parasites in the epidermis and in the papillæ, causing epidermal and papillary lesions.

LIGATURE OF THE RIGHT COMMON CAROTID AND RIGHT SUBCLAVIAN ARTERIES FOR INNOMINATE ANEURYSM.

Dr. Aimé Guinard of Paris in 1892 tied at the same operation the right common carotid and right subclavian arteries for an aneurysm of the innominate artery, and probably in consequence of the publication of that case many instances of this form of aneurysm have been put under his care, so that he has up to the present performed this operation 15 times, and in the *Revue de Chirurgie* for February he has recorded the conclusions at which he has arrived. As to the operative technique, he points out that if the aneurysm is entirely intrathoracic the operation is easy, perhaps even easier than on the dead body. Dr. Guinard considers that it is unnecessary to discuss the question whether both vessels should be tied at the same operation, for all are agreed that it is better to do so. The carotid should be tied first, especially because to tie the subclavian first probably causes a disturbance of the circulation in the aneurysm, which may cause an embolus to pass into the carotid, and so into the brain; while if the carotid is first tied, an embolus passing into the arteries of the arm would give rise to results much less serious. When the aneurysmal mass encroaches on the neck the difficulty of ligature is increased, but the aneurysm may be turned aside gently in order to allow the ligature to be applied. Either silk or catgut may be employed for the ligature, though Dr. Guinard in his later operations employed silk. He does not consider drainage necessary. No accidents of any importance occurred in Dr. Guinard's cases, and if we exclude, as we reasonably may, the pre-antiseptic statistics and cases in which the left carotid was blocked, the only accident of which mention needs to be made was one in which the subclavian artery was tied first and the patient died soon after the operation apparently from cerebral embolism. Chloroform was used for anæsthesia and no trouble arose from it. It is essential, however, that the other carotid artery and the remaining anastomotic channels should be free, for if they are blocked disturbances of the cerebral circulation are extremely liable to occur. In Dr. Guinard's first case in 1892 the patient became hemiplegic on the third day and died on the fifth day. At the necropsy it was found that the left carotid artery was completely blocked. In such cases as these the untoward result cannot reasonably be laid to the account of the operation itself. Dr. Guinard arrives at the conclusion that the right common carotid should never be tied until the surgeon is satisfied that the left is pervious. It is not improbable that cases of late hemiplegia in which an extensive clot forms in the branches

of the carotid are, in part at least, due to a mild infection of the wound. As to the results of this double ligature for aneurysms of the innominate, Dr. Guinard considers them to be very satisfactory; in fact, he claims that if regard be paid to the most recent statistics only all the cases recover, the aneurysms ceasing to enlarge or contracting greatly. There is frequently an immense difficulty in diagnosing the exact site of an aneurysm at the base of the neck, and it is not improbable that errors of diagnosis have been made in some of the cases treated by this double ligature. In fact, Dr. Guinard claims that aneurysms of the ascending portion of the aorta are often greatly benefited by the operation.

THE PUBLIC EXERCISING OF INSANE PATIENTS.

IN our Parliamentary Intelligence this week we record the replies of the Home Secretary to questions asked by Mr. Chiozza Money concerning recent escapes of insane persons from asylums, and concerning the inquiry into the practice of exercising such patients in public places which has been made by the Commissioners in Lunacy. The inquiry in question dealt with the escape of patients from London County Council asylums on the Horton estate at Epsom. Mr. Gladstone replied that the Commissioners had reported on the matter and that he concurred with their views. The views to which he referred, and which have been issued as a White Paper, will be of interest to many of our readers. Without entering into details we may say that the Commissioners found that the complaints of inconvenience and annoyances caused by the present exercising arrangements at Epsom were of a vague and general nature, and that such specific charges as were made were all anonymous, a circumstance precluding any investigation into their *bona fides*. No proof of any depreciation of property in the neighbourhood on account of these excursions was forthcoming. The Commissioners consider that the present system of exercising suitable patients away from the asylum boundaries under proper regulations is not only humane but a useful measure of treatment and administration. They further express themselves satisfied that "the experience of upwards of 50 years has markedly indicated that the greater liberty and freedom from restraint that you can give insane patients in asylums the less likely are they to attempt or wish to escape."

THE Gresham Lectures will be delivered by the Gresham Professor of Physic on April 20th and the three following days at Gresham College, Basinghall-street, E.C. Dr. F. M. Sandwith's first three lectures will deal with the history of cancer, with the geographical distribution and theories of causation of cancer, and with the causes, symptoms, and treatment of the same disease. The subject of the last lecture of the course will be "The Results of Recent Research on Certain Diseases," namely, malaria, yellow fever, trypanosomiasis, Malta fever, and diphtheria.

THE Queen and the Empress Marie of Russia paid a visit to the London Hospital on the afternoon of April 5th. Their Majesties visited the Finsen light and Tyrnauer baths departments, the out-patient department, the ophthalmic wards and theatre, and a large surgical ward, in which they conversed with all of the patients. They received a hearty welcome from the patients, the students, and the nursing staff of the hospital, and were greatly interested in their visit.

ON April 5th Princess Alexander of Teck opened the new out-patient department of the Royal Boscombe and West Hants Hospital in the stead of the Duchess of Albany who was prevented by indisposition from making the necessary journey. Her Royal Highness was presented with an illuminated address.

A TELEGRAM from the Governor of Hong-Kong to the Secretary of State for the Colonies states that 5 cases of plague were reported during the week ending March 29th, the number of deaths being 4.

THE METROPOLITAN WATER-SUPPLY.

DR. A. C. HOUSTON'S THIRD REPORT ON RESEARCH WORK: THE IMPORTANCE OF STORING WATER ANTECEDENT TO FILTRATION.

A THIRD report[1] on research work has been issued by the energetic director of water examinations to the Metropolitan Water Board and is one of the most important documents bearing upon the London water-supply that have come before us. Dr. Houston's previous reports have been written with extreme clearness and simplicity of phrase so that their main conclusions could be grasped by any intelligent person without scientific knowledge, and in the present instance it is again evident that no pains have been spared to render each statement intelligible to every member of the Board. The report, in fact, carries a very practical message, and we trust that after its acceptance it will not meet with the fate of so many official returns which are filed for reference and are never afterwards referred to.

The document consists of 46 folio pages, of which half are devoted to the report and recommendations and half to an addendum containing the analytical results upon which the first part is based, set out in tabular form. We shall notice here the main conclusions and would recommend a perusal of the report itself to all practical sanitarians. The introduction shows that—

> The medical advisers of the Local Government Board have for long held the view that "time" is to be regarded as an important element among conditions that in nature combine to annul the vital activities of particulate matter which is a cause of disease. That, for example, if a long interval takes place between elimination by a given infected host of some morbific material and subsequent ingestion of the eliminated material by other individuals of the same species and with like susceptibility, infection of these other individuals may fail to take place by reason of the infectious property of the substance having, in the meantime, become weakened or altogether lost.
>
> It is now thought that the merely mechanical effect of storage—that which results in the sedimentation of many of the microbes originally present in a water—is of far less importance than certain devitalising processes which occur under storage and which involve the ultimate extinction of specific bacteria in the water *plus* its sediment. In the experiments made special tests for specific bacteria have been correlated with simple tests for non-specific excremental bacteria on a time basis, with the result that when the latter yield negative results with a certain volume of water the absence of the former (pathogenic bacteria) may with confidence be inferred.
>
> In a recent report[2] this aspect of the question was referred to under the heading of the "safety change" in river water occurring as the result of storage, and the suggestion was then made that it is not only the *actual* quality of a stored water, but also the degree of difference between it and the original *raw* water, which affords assurance of purity and safety.
>
> A practical outcome of the above work has been that dependence is now being placed more and more on experimental proof that the water reaching the filter beds is, as the result of adequate storage, in a reasonably "safe" condition *antecedent* to filtration. When the stored water results are satisfactory, this really constitutes a new and important element in the "safety" of the London water-supply. It means indeed that even if a breakdown in the filtering arrangements occurred, the quality of the water distributed to consumers, although possibly open to criticism on physical grounds, might yet be relatively (if not absolutely) innocuous.

Systematic observations on the effect of storage on *raw* water were commenced in August, 1907, and the present report deals with the 12 months ended July 31st, 1908. It is pointed out that difficulty was experienced in finding conditions wholly suited to the inquiry but the waters named below were finally chosen for the purpose as being fairly typical of the varied conditions of the metropolitan supply; in each case samples were taken of the *raw* water and of water from the same supply after storage for a nominal number of days—a number which, owing to variable conditions of flood and drought, must be read with certain reservations, because the method of impounding the raw water in the storage reservoirs makes it

[1] The first and second reports were described in THE LANCET of July 25th, p. 255, and of Dec. 12th, 1908, p. 1908, respectively.
[2] THE LANCET, July 25th, 1908, p. 255.

almost impossible to define accurately the time relation between the *raw* and *stored* water. Thus the "intakes" are sometimes closed, the volume of water abstracted for storage purposes varies from time to time, the method of circulating water through the storage reservoirs depends on circumstances, and the amount of water in the reservoirs varies greatly throughout the year.

Source of raw river water.	Description of stored water.	Nominal number of days' storage.
River Lee at Ponders End.	Lee stored water.	58·44
River Thames between Sunbury and Hampton.	Chelsea stored water.	15·09
	Lambeth stored water.	14·35
		Based on the 1906–07 supply.
Almost entirely River Thames above Bell Weir.	Staines stored water.	95·00

Dr. Houston proceeds to state that his chief object was to ascertain whether the number of days' storage capacity which it is necessary to provide in avoidance of shortage of water-service under unfavourable conditions of flood and drought may be held to suffice in the matter of satisfactorily securing safety of the water in an epidemiological sense. In a word, does storage for *quality* require more accommodation than the obviously necessary storage for *quantity?* In the conclusions at which Dr. Houston arrived at he accepts personal responsibility so far as they are controvertible.

The second section of the report describes the bacteriological results and commences with a table showing the number of bacteria grown from the raw and stored water respectively on various media. This shows that the stored waters contained very few "total" bacteria in comparison with the raw waters, the reduction being especially well marked in the case of the Lee stored water.

As regards ratios, the results seem to indicate that the reduction in the number of bacteria in the stored as compared with the raw waters, tends to be *proportionately* less in agar at 37° C., than in gelatine at 20-22° C.; the converse (except as regards Lambeth) holding true when the bile-salt agar and ordinary agar results are compared. In other words, although storage apparently leads to a rather smaller *proportionate* reduction of organisms capable of growing at blood-heat than of microbes of all sorts, *proportionately* as well as actually, fewer blood-heat organisms are able to grow in bile-salt agar than in agar.

The results for bacillus coli are next given and afford striking reading.

Thames water.—About 50 per cent. of the samples of *raw* Thames water contained typical B. coli in one-tenth of a cubic centimetre. Of the Staines, Chelsea, and Lambeth *stored* water samples about 34, 43 and 16 per cent. respectively contained *no* typical B. coli in one thousand times as much water—namely, in 100 cubic centimetres. Or, preserving the same order, only 66·2; 57·2 and 83·7 per cent. of stored water samples yielded positive results in 100 cubic centimetres, and only 32·5; 32·5 and 51·2 yielded positive results in 10 c.c. of water. Thus on the foregoing basis of comparison, the Lambeth stored water was about one hundred and the Staines and Chelsea stored water between one hundred and one thousand times less impure than the *raw* Thames water.

Lee water.—Over 50 per cent. of the samples of *raw* Lee water contained typical B. coli in one-tenth of a cubic centimetre.

As regards the Lee *stored* samples, actually as many as 67·4 per cent. yielded negative results with 100 cubic centimetres and only 32·5 per cent. yielded positive results in that amount. Thus on the foregoing basis of comparison the Lee *stored* water was over one thousand times less impure than the *raw* Lee water.

Dr. Houston proceeds to show that as bacillus coli is more resistant than the typhoid bacillus it is presumable that the same results would apply to the latter organism if it were present, a presumption which has the support of his former research, in which he added typhoid bacilli to raw river water and found that 99 per cent. of them died after storage for a week. The results obtained in the present research with the bacillus enteritidis sporogenes are next described and show that storage caused a great diminution in that organism. In the case of the *raw* Lee water, 36·5 per cent. of ten cubic centimetre samples gave a growth, whereas it was not cultivated from a single sample after storage of the water. Further, on taking the Lee averages as a whole it was found that there was a 97 per cent. reduction of all bacteria growing at blood heat, and of those capable of growing on a bile-salt medium (chiefly excremental bacteria). Dr. Houston infers from this that a *raw* water which has uniformly undergone such a remarkable metamorphosis is almost certainly incapable after filtration, possibly (perhaps even probably) antecedent to filtration, of causing epidemic disease. Nevertheless, he regards storage of water as a pre-filtration precaution of the utmost value, not as a substitute for filtration. But in advocating sufficient storage accommodation he would much prefer the use of insufficiently stored water to the use of *raw* river water for filtration purposes. He next considers the ratios in the number of typical bacillus coli to the total number of bacteria found in the raw and stored waters, figures into which we need not enter further than to record that the worst results of the latter were on a level with the best results of the former waters.

The third section of the report deals with the chemical results from which we need only make brief extracts:—

It will be seen ..... that in all cases, the *stored* waters contained (on the average) less ammoniacal nitrogen, and less oxidised nitrogen; absorbed less oxygen from permanganate, and were less turbid, brown-coloured and "hard" (total hardness) than the average of the corresponding *raw* waters.

As regards the albuminoid nitrogen test, the average Lea stored water did not differ from the raw water, the Staines and Lambeth stored waters suffered an apparent increase, and only the Chelsea showed a reduction. In this connexion it must be remembered that the albuminoid nitrogen is an empirical test, and that it appears that a *stored* water may yield a higher ratio of ammonia to total organic nitrogen when boiled with alkaline permanganate than does a *raw* water.

A considerable number of laboratory experiments were also carried out to ascertain whether the *stored* waters were more easily filtered than the *raw* waters. The results are not given here as the method employed was only a rough and ready one. But they sufficed to show, under the conditions of experiment employed, that in the absence of an excessive development of algae, stored water was much more amenable to filtration than *raw* water. Under normal conditions (i.e., in the absence of algae) the use of *stored* water prolongs the life of a filter bed, often to a remarkable extent. In this connexion it may be pointed out that lengthening the life of filter beds is not only economically advantageous, but of epidemiological importance. For it is obvious that with a given filtration area the more filter bed area there is in active and efficient operation the better the results are likely to be. Unfortunately, however, it must be added that when algae develop in the storage reservoirs to an abnormal extent the *raw* river may be much more easily filtered than the stored water. To a considerable extent the developments of algae in storage reservoirs may be controlled by the use of copper sulphate, &c. Nevertheless, the use of chemicals is not likely to be recommended and is to be deprecated indeed unless carried out under proper scientific control.

In his concluding recommendation Dr. Houston suggests that the use of mechanical filters in place of sand filters might overcome the difficulty of an excessive development of algae. He also adds a caution against applying laboratory results too closely to the case of reservoir stored waters, in which the growth and decay of animal life and other factors may considerably affect by a sort of "mass action" the fermentation and oxidation of river waters. He suggests that the question of cleaning out the mud deposited in reservoirs may assume more prominence in the future and that it may be advisable to pass the water through preliminary settling reservoirs before its systematic period of storage in the larger reservoirs. He enters a plea for the utility of chemical water analysis which has been minimised in some quarters of late, showing that in some instances it may be the only way of gauging the work done by bacteria.

Section IV. deals with the shape, size, depth, construction, and method of working storage reservoirs. Stress is laid on the importance of arranging inlets and outlets with a view to insuring free circulation of the water. The "continuous flow" method of using a series of small reservoirs is advocated as more scientific and economical than the "quiescent method" of using large reservoirs, in which they are filled, closed for a certain number of days, and then emptied. The question is discussed as to whether the Board would be best advised to store its river water on a basis of a minimum or maximum period of 30 days. Dr. Houston points out that the former method would involve the construction of enormous and costly reservoirs, and suggests that the latter would be found efficient if provision were made against deterioration of stored water during periods of stress and storm, such as the installation of "roughing" filters or precipitation tanks to be used upon occasion between storing and filtration.

Sections V., VI., and VII. deal with certain qualifying considerations, alternative measures such as sterilisation and the disadvantages of storing, to which due weight is given, but none of which appear to present vital difficulties to Dr. Houston's scheme. Their consideration is followed by the final section on the advantages of storing and Dr. Houston's conclusions. He states his case with logical precision under the following five heads:—1. *Adequately* stored water is probably incapable of causing epidemic disease. 2. There is reason to believe that stored and subsequently filtered waters are in a better condition chemically and physically than unstored and filtered waters. 3. Adequate storage may lead

to easier filtration and a resultant economy of cost. 4. Adequate storage will afford a continuous sense of security absent under conditions which make it impossible to examine daily samples of all water passing through the Board's 160 filter beds. 5. Adequate storage tends to wipe out the gravity of the charge that London's supply is derived chiefly from sewage-polluted rivers.

Finally Dr. Houston replies in words which we must quote in full to the question as to whether the results of the research justify the policy of storing all water before filtration.

> I venture to anticipate that it will be considered that this question has been answered satisfactorily in the affirmative.
> The difficulty of answering the subordinate question as to the exact number of days that a water should be stored before filtration may be rendered easier if certain assumptions are entertained. These are:—
> (1) That the principle of "active storage" as opposed to "passive storage" is accepted as sound.
> (2) That it is possible to "pool" the existing stored water interests so as to remove the anomaly of using over-stored water for some districts and under-stored waters for others.
> (3) That the river water can be effectively and continuously circulated throughout the several storage reservoirs.
> These assumptions being granted, and bearing in mind that the Board's existing storage reservoirs are now capable (in the aggregate) of holding about 40 times the average daily supply, it is considered, that subject to one qualification, the present storage capacity (say 30 days) is reasonably sufficient (on the present consumption of water) for purposes of safety. The qualification is that sometimes no river water can be used to replenish the storage reservoirs for the reason that the rivers are in high flood, and in too unsatisfactory a condition to permit these waters to be impounded, or because, owing to drought there is too little water in the rivers to allow of its being abstracted for waterworks purposes. In these untoward circumstances the water in the storage reservoirs must needs sink lower and lower each day, with the result that when the conditions again admit of refilling them (possibly with water of inferior quality) a period inevitably follows during which the duration of storage of necessity falls short, it may be far short, of 30 days.
> There are two ways of coping with this difficulty: 1. To consider 30 days as a *minimum* period of storage. This would entail the construction of huge reservoirs at an unremunerative cost, capable of holding far more than 30 days supply of water, in order to cope with the emergency conditions just mentioned. 2. To consider 30 days a *maximum* period of storage but to adopt during times of stress and storm some such additional methods of purification, *antecedent* to storage, or *subsequent* to storage but *antecedent* to final sand filtration, as have been briefly outlined in the concluding paragraphs of Section IV. of this report.

Dr. Houston's final conclusion is that *raw* river water should be stored *antecedent* to filtration, preferably for 30 days. The question of whether the 30 days' storage should be fixed on a maximum or on a minimum basis he has left unanswered, but he holds that if the former alternative be chosen the desirability of employing supplementary processes of water purification to tide over emergencies is worthy of consideration.

THE ROYAL COMMISSION ON THE POOR-LAWS AND RELIEF OF DISTRESS.

VI.[1]

THE REPORT OF DR. J. C. MCVAIL ON POOR-LAW MEDICAL RELIEF IN CERTAIN UNIONS IN ENGLAND AND WALES.

IN order to render complete the information upon which it was to base its report, the Commission caused to be undertaken, by investigators appointed on account of their special competency in relation to certain subjects, various inquiries of importance. It is not proposed to deal at length in this series of summarising articles with all of these special reports, for their gist has in many instances been made plain by reference to them in the Majority and Minority Reports, which in some instances have quoted freely from them. It will, however, be of interest to readers of THE LANCET to comment upon some of them briefly as they appear, when they are concerned with questions affecting the medical profession. But one report of a special investigator to which reference was made in THE LANCET of April 3rd, p. 993, demands more elaborate treatment. It has been issued in a Blue Book, which, including appendices, contains 338 pages of printed matter, and is that of Dr. McVail, county medical officer of Stirling and Dumbartonshire, who was instructed to "inquire and report on the methods and results of the present system of administering indoor and outdoor Poor-law medical relief in certain unions to be selected from a list drawn up by the Commission." Dr. McVail brought to this inquiry a mind trained by work and experience of a kindred character in Scotland, but unfettered by previously acquired knowledge of Poor-law methods in England and Wales, and he bases his conclusions upon conditions observed in a large number of typical unions, Metropolitan, urban, and rural, ranging north and south from Northumberland to Somerset and east and west from Norfolk to Montgomeryshire. It will be observed by those who peruse Dr. McVail's report that owing to the wide terms of the reference made to him and the extensive area covered by his investigations, the summary of his conclusions almost inevitably takes the form of a general scheme recommending measures of change affecting other branches of Poor-law work as well as that of medical relief. Dr. McVail, in drawing his conclusions, has been at the disadvantage of not knowing the nature of those at which the Commissioners themselves would arrive, and to which they were evidently guided to a large extent by the facts laid before them by himself and others. Indeed, as he himself observes (p. 17), "In making recommendations and suggestions as to possible alterations in the present system, it has been necessary to think of the subject first, on the assumption that the present local organisations will remain, and that improvements in detail only are to be considered, and secondly, on the hypothesis that there may be a fundamental change in the local authorities, or a transference to country or municipal administration of medical work, at present done under the Poor-law, the main object of such transference being development of the preventive as distinguished from the curative or palliative side of medical treatment." The sentence quoted will be found to contain a certain amount of not incorrect prophecy, for both the Majority and Minority Reports agree that there should be a fundamental change in the authority with a view to prevention and relief, a change which, if the Majority Report is followed, will institute a new local authority altogether, or which, according to the advice of the Minority, should lead to a "transference to county or municipal administration." The consideration of improvements in detail only is not likely to satisfy the Legislature, because the improvements in detail the need for which is urgent are too numerous and too far-reaching. It is a matter of observation, however, that the report of Dr. McVail reveals many possibilities of improvement well within the competency of boards of guardians and not implying substantial increase of expenditure on their part. As examples might be mentioned provisions for admitting to dormitories and sick wards the fresh air which is always at hand by unsealing windows and opening them; similar steps to secure the ventilation of closets and latrines; the authoritative regulation and better supply of hot water in reasonably comfortable bath-rooms; provisions for a reasonable individual use of towels and hair brushes; the instruction of the young in the use of tooth brushes, and the provision of these important aids to the sanitary toilet. Obviously the undesirable qualities of the present system which point to its drastic reorganisation in the opinion of the Commission are not inseparably connected with matters of detail of this kind, which, however, appear necessarily in the report of a medical investigator upon existing conditions observed from the point of view of practicable sanitary reform.

Dr. McVail divides his report into nine parts. Part I. is introductory, and, besides explaining the methods adopted by the investigator, contains statistics of pauperism in unions visited, particularly instructive with regard to the varying cost of pauperism, the expense of keeping the individual pauper, and the expenditure per head of the population upon poor relief. Part II. and Part III. describe and discuss respectively rural and urban workhouses and infirmaries, and Part IV. is entitled "Certain Questions of Policy common to Rural and Urban Medical Relief." In criticising the sufficiency or insufficiency of medical attendance in sick wards and infirmaries Dr. McVail has had to draw a sharp distinction between rural and urban districts, and he points out that the effect of the repugnance to the "workhouse" observable in rural districts includes sick wards and infirmaries, so that in the country the majority of cases requiring medical care accept outdoor relief and refuse to come within doors. It need hardly be added that some of these require institutional treatment, and that to render it acceptable to them will be one of the results aimed at under whatever system takes the place of the present one and abolishes

[1] Nos. I., II., III., IV., and V. were published in THE LANCET of Feb. 27th (p. 638), March 6th (p. 706), 13th (p. 782), 20th (p. 859), and 27th (p. 935), 1909, respectively.

the general workhouse. Part IV. discusses some very important medical topics, such as the management under the Poor-law of epileptics, imbeciles, and cases of curable insanity; it also discusses the possible extension of the usefulness of the maternity ward. A further subject of interest referred to in this part is at the first glance one of administration—namely, the question of compulsion. It is, however, one affecting intrinsically the question of medical relief as applied in the direction of prevention, the prevention of disease, the prevention of the breeding and rearing of children in circumstances which destine them almost inevitably to become paupers; the prevention, in short, of that constant expenditure upon palliative treatment which wastes money and prevents its bestowal so as to attain a desired and desirable result. The question of the possibility of compulsion is one of the most difficult with which future administrators of poor relief will have to deal, and it may be illustrated from Dr. McVail's observations upon the children of "ins-and-outs" and upon the possibility of the compulsory detention of these undesirable persons in Poor-law institutions. A man may enter a workhouse temporarily and behave well there, performing the tasks allotted to him and conforming to its discipline. After a while he may insist on leaving it, and he cannot then be forced to remain. He may go out merely for the purpose of enjoying a spell of dissipation, and may return filthy, verminous, and suffering from the effects of debauchery. During his retention in the institution his children, if he has brought any with him, will have been well looked after, and they, too, will have profited by the time bestowed on them. Indoor relief is, however, under existing rules refused to the children of the able-bodied man who remains outside, and the children must go out with the father to return with him when he decides to go back, in a plight corresponding to his and produced through his neglect. They will then be again taken care of during their parent's pleasure at an expense to ratepayers which, so far as the effecting of any lasting good is concerned, is absolutely thrown away. Compulsory detention for the "in-and-out" in a labour colony or an institution of a reformatory character is here suggested by Dr. McVail. This is one instance of many where the giving of medical and other relief subject to the enforcement of conditions aims at the production of lasting results, both in the individual and to the community. The object is very difficult of attainment. Dr. McVail devotes Part V. of his report to the recording of his observations with regard to the medical supervision of pauper children; and Parts VI. and VII. to outdoor medical relief in all its branches, including the treatment of phthisis, both in workhouses and by outdoor relief, Part VII., which describes and criticises Poor-law dispensaries, being contributed by Dr. J. R. Currie. Part VIII. deals with the attractiveness and deterrency of Poor-law medical relief, and Part IX. summarises the general conclusions at which the investigator has been brought by his inquiries. These, as has already been suggested, may be classified in two groups, the first containing recommendations to be applied in improving the Poor-law service as administered by the guardians; the second those relating to the possible reorganisation of all existing conditions, particularly with regard to the constitution of the body charged with the supervision of the destitute.

It was not for Dr. McVail, naturally, to put forward such a scheme as that formulated in detail by the majority of the Commissioners for the constitution of public assistance councils and committees, with their various proposed duties of organisation and coöperation. He suggests rather the desirability of combining the distribution of relief with the care of the public health, on the ground that such a combination would tend to prevention of much disease by promoting the individual and national efficiency through the living of a healthy life in healthy surroundings. A unified service, he points out, would bring one authority to bear upon subjects now under the jurisdiction of two, as, for example, when the conditions of life of pauper children living with a widowed mother demand interference more appropriate to a health authority than to administrators of the relief of destitution. It may be observed that the need for increased help to, and supervision of, widows in the rearing of their children is a point dwelt upon with emphasis by Dr. McVail. The unified service, however, in his opinion, could not be carried out with sufficient independence, strength, and efficiency by such strictly local bodies as now supervise the Poor-law or as are intrusted with the care of local sanitary matters, and he indicates the need of a more important authority, covering a larger area, and likely to enlist the services of the best class of citizen, intellectually and socially.

Perhaps, however, the most notable of the recommendations made by Dr. McVail is to be found embodied in two memoranda which he appends to his report and in which he recommends the adoption of medical provident institutions contributed to by the working man and subsidised from public funds. He is of the opinion that such institutions would take the place of the medical branch of the friendly society's functions, and that as compared with a universal rate-provided medical service they would be better adapted to the development of preventive medical measures. He would make it the duty of the medical man to call periodically on all the households assigned to him. They would be upon his list through the exercise of a right of selection given to persons whose membership of the provident institution would imply their appreciation of the privilege of visitation and inspection, so that the visitor would be received with consideration, whereas the facilities given to him would often be denied if his visits were part of a free national service offering its assistance to those willing to benefit by it. Part of the duty of a medical officer under such a scheme would be "not merely to attend patients during illness but to offer a periodical, perhaps an annual, medical examination of every individual on his list, child and adult," the examination including general physical condition and the vital organs and being followed by appropriate advice. Such an examination would not be, as Dr. McVail proposes it, of a compulsory nature so far as the subject of it was concerned, but it would be obligatory upon the medical officer to offer the opportunity for it. There would be other inducements to join such provident institutions, among which would figure the subsidy by the State or from the rates and the power to choose a medical man from those on the list of the institutions, but one of the most valuable, in Dr. McVail's opinion, would be this periodic offer of medical inspection made to those who at the time have no reason to suspect present or impending ill-health. In his second memorandum, which amplifies his suggestion of "Home Medical Inspection," he urges that it would have among its results the early discovery and treatment of tendencies to such diseases as tubercle, gout, rheumatism, diabetes, obesity, insanity, alcoholism, or cancer, and timely warning as to treatment and condition of life.

The usefulness of such inspections with reference to children and young persons he points out in other paragraphs, and presumably he intends these to supplement in the case of those of school age the examinations undertaken under the auspices of the education authority. He points to the usefulness of home examinations in the case of women after childbirth and of old people, as well as the possibility with regard to men of anticipating ill-effects likely to arise out of their employment. Altogether Dr. McVail makes out a strong case in favour of periodical inspection of the kind described, and it must be remembered when his suggestion is criticised, as no doubt it will be by laymen and by the medical profession generally, as well as by those who are personally engaged in Poor-law medical service, that it is a proposal bearing directly upon the object with which the Royal Commission was appointed—namely, the organisation of poor relief, medical and otherwise, so that pauperism may not merely be palliated but diminished or prevented. We note that Dr. McVail calls attention to the possibility of so defining and arranging the functions of the provident institution as to control and check the flow of out-patients to the general hospitals, and to leave these free to expend their resources upon cases which ought to be treated in their departments and which can be treated effectively in them alone. Among such cases would be those for which the resources of the Medical Provident Institution might prove inadequate. An interesting feature of the suggestion of medical inspection discussed above may be pointed out. It has for its object the provision of medical advantages for the labouring man which the worker in other spheres who can afford to pay for his own medical attendance has not hitherto as a rule considered necessary or even desirable. This fact may inspire some of the adverse criticism which will be aroused, although it is possible that the institution of periodic inspection through the agency of provident institutions might lead by force of example to very useful precautions on the part of those

who now are improvident where their personal health is concerned. Very full and interesting appendices follow the report of Dr. McVail and compose a most valuable record of Poor-law administration and of particulars of Poor-law medical work. Both sections of the Commission have testified their appreciation by frequent quotation and reference, particularly in Part V., Chapter II., of the Majority Report, and in Chapter V. of the Minority Report.

SANITATION IN INDIA.

I.

WE propose to repeat this year the review of the sanitary administration in India that we were enabled to present to our readers last year by the courtesy of the various authorities who kindly placed in our hands the yearly reports relating thereto. We shall accordingly notice firstly the sanitary administration generally, and then that of the jails, asylums, civil hospitals and dispensaries, &c. We commence to-day with an article on the general sanitary administration of the empire. The reports being in most cases some two years old, we shall occasionally be traversing ground that has been already gone over in our columns, but the design is to present a complete picture.

Calcutta.

The report of the health officer of Calcutta for the year 1907 is rendered by Dr. T. Frederick Pearse. This officer commences his report by drawing attention to two important points that require to be considered. In the first place, he shows that according to the custom in India the estimations of the ratios of births and deaths have been made upon the population figures of the previous census. Now, if the population remained stationary there would be few errors, but Calcutta has grown enormously, and consequently the farther any year is from that of the previous census the greater are the mistakes in all the ratios calculated. The importance of making allowance for this increase of the population may be illustrated by taking the general death-rate for 1907. This worked out on the usual plan at 37·6 per 1000, but the number of deaths amongst the larger estimated population reduces the general death-rate to 33 per 1000. The second point for consideration is more complicated. The returns show a great excess of males at ages 10–50 years, a deficiency in the number of young people under 20 years, and excess of working adults 20–50 years, as compared with Bengal. This deficiency of children and excess of young healthy males lower the general death-rate and make the usually recorded rate for Calcutta appear better than it really is. As a matter of fact, the low death-rate in Calcutta is masked to such a degree as compared with that of Bengal that the rate, nominally 33 per 1000, is raised to 39·3 per 1000.

With respect to the "Births and Birth-rates," the females constitute only about 33·4 per cent. of the population, whereas in Bengal the two sexes are about equal in number. Both in Calcutta and Bengal the child-bearing ages of 15–45 years form about half of the total female population. The registered births during the year 1907 amounted to 16,224, a rate of 19·1 per 1000 on the whole census population, and of 16·7 per 1000 on the estimated total population. This compares favourably with the partially corrected rate of 15·7 for 1906. But neither of the above is the correct rate, which is, allowing for the increase of population, 24·5 per 1000. This is a low birth-rate for India, but it is above that recorded for the other towns of Bengal, which is 22·2. Factors causing the birth-rate to be small are that there are a considerable number of births never registered, whilst the inclusion of 15,000 prostitutes amongst the total number of females of child-bearing age also tends to make the birth-rate small. The ratio of registered births per 1000 has improved from 17·7 to 19·1. As regards the infant mortality this continued high, being 293 per 1000, but it is satisfactory to note that it was lower than that recorded in previous years.

Regarding the incidence of particular diseases, we find that in the year under review there were two outbreaks of cholera, one in January and the other in November and December. They accounted for 3803 deaths, showing a more severe incidence than has occurred in any year during the past decade. The northern and southern districts were chiefly affected. Again, since Feb. 1st, 1908, there was a fresh outbreak following the "Ardhodaya Jog," many pilgrims being affected, and the disease spreading also to the whole population. The mortality fell largely among Hindus, 85 per cent. of the deaths occurring amongst them, although they formed but 65 per cent. of the total population. This rate equals about 1 in 165 of the total Hindu population. The Mahomedan had only 169 deaths, equal to 1 in 500 of this portion of the population. The particular incidence amongst the Hindus was doubtless due to their custom of bathing in the Hooghly river and Tolly's Nullah, and using the water for drinking and other purposes. It also was due to the use of the water from foul tanks, small localised outbreaks occurring around these tanks. Especially in the western areas the stand posts of filtered water are deficient, so that the people resort to other sources of water-supply. We are glad to note that this deficiency is being gradually reduced. Cholera being the chief danger of all great Indian festivals special preparations were made regarding the above fair, as it was anticipated that an enormous number of pilgrims would come to Calcutta. Thus, filtered water posts were erected at every 100 feet along all the principal roads leading to the temple of Kalighal, which had been selected for the place of worship on this occasion. Suitable latrines at a large number of convenient sites were erected; the drainage in the courtyard of the temple was improved; the food-supplies were regularly inspected, as also were the pilgrim houses which were provided for the first time with a filtered water-supply; a large extra staff was enlisted for cleaning the roads, ditches, latrines, and urinals; all the tanks in the vicinity had their water chemically treated; all traffic was stopped along Tolly's Nullah; special cholera hospitals were established with a dispensary for cases of temporary illness; the places from which cases of cholera were removed were thoroughly disinfected; and lastly, owing to the excellent police arrangements, there was no crush and but little crowding. In consequence of these highly satisfactory arrangements the cases of cholera were certainly not so large as had been feared. As regards the actual treatment of the cases, saline injections were used in many cases with satisfactory results. The influence of the festival is shown by the fact that for the two weeks previous to its occurrence the deaths from cholera were 23 and 24 respectively, whilst within a week they rose to 104, and the disease became widely disseminated over the city. These festivals are a never-ending danger to the population, and so long as religious feelings compel the use of the unfiltered water of the river there will be danger of these outbreaks.

With respect to small-pox, there was a marked outbreak of the disease during the early part of 1907, although it was not so severe as in 1906, 1286 deaths being registered. In 1906 there were 2905 deaths. This disease shows itself in periodic outbreaks, although it is hardly ever absent from the city. The usual interval between the epidemics seems to be five years. Unfortunately, the cases are not properly reported, except from the hospitals, so that the sanitary department is unable to institute early preventive measures, as there is little or no chance of isolation unless cases are notified early, and in Calcutta there is practically no notification at all. Disinfection is useless when there is no knowledge as to where the disease exists. Hence reliance against its spread must be placed on vaccination. The returns for this procedure showed a diminished activity in 1907, as compared with 1906. There were 23,121 primary vaccinations and 12,609 re-vaccinations, of which 14,160 were performed at the several stations and 21,924 in the "homes." These statistics work out at about three only a day at each station and less than three at the "homes." This small number Dr. Pearse rightly considers unsatisfactory. The quality of the lymph used was evidently very good, as the percentage of successful vaccinations was 98·4 for primary cases.

Plague caused 3591 deaths, the northern half of the city being most affected. Though more severe than in 1906, yet the outbreak was much less so than in other former years. With regard to malaria there is no reason to believe that it is a more fatal disease than formerly; on the contrary, the more accurate statistics of later years show the reverse to be the case. Mosquito brigades were formed that attended to the breeding places of the insect, but action in this direction was spasmodic and not persistent. Dysentery and diarrhœa were twice as high in Districts III. and IV. as in the northern half of the city, which is doubtless due to the use of the water from the thousand or more of foul tanks in the former. Females

suffered universally more than males, probably owing to their more constant use of this foul water. Epidemic dropsy reappeared during the latter half of the year in an epidemic form. Dr. Pearse draws attention to the frequent occurrence of cases indistinguishable from cases of beri-beri; thus these showed deep-seated pain in the legs and calves, impairment or loss of knee-jerk, unsteadiness of gait, and cardiac trouble. Anæsthesia, which had not been noticed in previous outbreaks, occurred in the one under notice. Death occurred also, sometimes suddenly. It is apparently a communicable disease with an incubation of about three days.

The report concludes with an account of the work of the department in the laboratories, the work carried out by the food inspectors, with other matters, and finally, various excellent sanitary reforms are suggested as regards privies, municipal cowsheds, and slaughter-houses. The provision for displaced population and for the removal of infectious cases to hospital is also at present wholly inadequate to the requirements. This is a most admirable report.

Burma.

Major C. E. Williams, I.M.S., the Sanitary Commissioner for Burma, furnishes the annual report for 1907. Since the retirement of his predecessor Colonel W. G. King, the offices of Inspector-General of Civil Hospitals and Sanitary Commissioner have been separated, Major Williams being appointed to the new post of Sanitary Commissioner to the province. With reference to the vital statistics, the total population, which in 1901 was 8,485,980, had increased by March 1st, 1908, to 9,731,233. There was an increase of births over deaths to the amount of 52,841; the registration of births and deaths, however, the Sanitary Commissioner shows, is capable of much improvement. As regards the rainfall, that in Lower Burma was much in excess of that in 1906, whilst in Upper Burma the contrary obtained, the latter year having showed a great decrease. No excessive sickness or mortality, however, appears to have resulted from this scarcity in 1907. The death-rate for the whole province was 26·60 per 1000.

Turning now to the chief diseases, we see that cholera accounted for 8378 deaths, showing an increase of 506 over the previous year. The Irrawady Division, as usual, suffered more than any other. Upper Burmah escaped entirely with the exception of an outbreak in the Lower Chindwar which accounted for over 100 deaths. The Sanitary Commissioner shows how the river water is the chief vehicle for the spread of the disease. Thus at Rangoon it was practically confined to dwellers on or by the banks of the river and main creeks not provided with a pipe water-supply or with an efficient conservancy system. A number of samples of river water stored in the dwellings of persons infected with cholera were found to contain vibrios giving many of the reactions typical of the vibrio choleræ, and similar organisms were present in samples of water taken from the streams and creeks in the vicinity. Such water is employed in cook-rooms to wash the food utensils and for other domestic purposes. The cold fresh water tanks were not under suspicion as they were resorted to by a large population of Burmans and others who did not suffer from cholera, and microscopical examination of samples of the water showed it to be free from vibrios. During the last two successive years a row of buildings overhanging the river in the Kamakisit quarter, and occupied by Mahomedan Khalasis employed on river launches and steamers, supplied many cases of cholera, whilst the residents of the adjacent rows of houses a few feet away, nearly all Burmans, escaped infection. The latrines used by the Mahomedans overhang the mud shore, which is washed by each returning tide, and from the water thus polluted the residents of the huts drew their supplies, which were found stored in jars adjacent to their cooking places and drinking water-jars, and either supply was, no doubt, used somewhat indiscriminately by the cooks. In the North Kemmendine quarter of Rangoon the water of a certain well was found to originate cases; its closure put a stop to the disease. The Sanitary Commissioner also thinks that the river water is itself the vehicle for the spread of the cholera poison, as the excreta of 50,000 persons fall into it directly from overhanging latrines or are washed into it by the rising tides or by heavy rain. To remedy these defects an ample supply of fresh water is recommended for all purposes, whilst an efficient system of conservancy must be introduced into the riparian quarters and the shores of the rivers and creeks must be kept free from pollution. Thus the spread of infection will be reduced, although the population afloat will still be a source of danger. Amongst the preventive measures introduced we are glad to notice that facilities for boiling water were adopted, the washing of clothes in the river was prohibited during the cholera season, and the erection of new dwellings close to the banks of the creeks was prevented in accordance with the policy suggested by that energetic officer, Colonel King.

Regarding fevers, we note that there was an increase of 3401 cases over the return for 1906. Enteric fever was found to be more widely distributed than was formerly supposed, the diagnosis having been confirmed by Widal's reaction and by post-mortem examination. Distribution of quinine by tablets, which are much preferred to powders on account of the bitter taste of the latter, takes the first place in the preventive measures against malaria in this province. Other measures are the formation of mosquito brigades, drainage schemes, and the clearing of brushwood in the vicinity of towns. Small-pox occurred in 1908 with less frequency in Lower Burma than in 1907, there being 6371 fewer deaths, whilst in Upper Burma there were, on the contrary, 713 more deaths. A vaccination manual is under preparation for the approval of the Government defining the duties of the district vaccination establishment and enabling thereby its services to be utilised to the fullest advantage. With respect to dysentery and diarrhœa, there was a decrease of 837 deaths on the 1906 return.

As regards plague, an increase of 612 over the mortality of 1906 occurred. This increase was confined, however, to Upper Burma, there being a decrease of 197 in Lower Burma. The Sanitary Commissioner points out that the disease is really much more prevalent than the returns show. Thus there was an enormous unexplained rise in the death-rate at Prome at a time when plague was believed to be in abeyance, and similar occurrences elsewhere lead him to think that the plague mortality has been under-estimated. The measures in force for the limitation of its spread in already infected areas were surveillance, rat destruction, cleaning measures, chemical disinfection, earth-oiling, evacuation, and inoculation; of these the first was ineffective. Every measure for the suppression of plague in a defined area must aim at the destruction or exclusion of rats. To effect this all refuse must be removed, the dwellings constantly cleaned, and the quarters for domestic animals must be separated from those of their owner. Specially trained groups of men must be employed to exterminate the rats.

It has been found by Major Williams and Captain Ba Ket, I.M.S., special plague medical officer, that infection usually starts in a neighbouring public bazaar or in the principal stores found in its vicinity. Stables are another constant centre, especially pony stables, the wooden flooring of which is so constructed as to leave a secure retreat for the rats underneath it; in contradistinction, where a masonry pavement was laid down not one rat was observed. The Simpson steam and sulphur fumigator, exhaustively applied, did not have results coming up to expectation, and, moreover, no material for the piping was found capable of resisting the action of the combined steam and sulphur fumes, nor has the asphyxiator machine proved of much service. Major Williams rightly holds that where the wooden floors have been removed to get at the rats it is of chief importance to replace the floors by a masonry plinth or to raise the floors so that inspection and cleansing of the ground underneath can be efficiently carried out. 7,544,645 rats were reported to have been destroyed in 1907. 18,164 persons were inoculated with Haffkine's fluid, of whom only 60 people subsequently contracted the disease, with 43 deaths. Not much benefit accrued from earth-oiling. Chemical pulicides, as a spray, such as izal or cyllin with petrol, are claimed to have germicidal as well as pulicidal qualities, concerning which experiments are being carried out. In conclusion, the prevalence of plague was found during the last six months of 1907 to have been much less than in the corresponding period of previous years in nearly all towns and districts.

The remaining portion of this valuable report contains an account of the Port Health Department, of the civil sanitary work, some remarks on the necessity of model sanitary work, with the various appendices. Last year we dwelt on the extremely able report of 1906 of Colonel King, the Sanitary

Commissioner, and from a consideration of the one for the year 1907 we see that his mantle has fallen on no unworthy shoulders.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

ELECTION OF PRESIDENT.

AN extraordinary Comitia was held on April 5th, Sir R. DOUGLAS POWELL, Bart., K.C.V.O., the President, being in the chair.

The PRESIDENT announced that he had nominated Dr. W. Pasteur as the representative of the College at the 350th anniversary of the foundation of the University of Geneva to be held in July next.

The PRESIDENT expressed his thanks to the College for the expression of sympathy on the death of Lady Douglas Powell, passed at the last Comitia.

The PRESIDENT then delivered his annual address, in which he offered congratulations to those Fellows, Members, and Licentiates of the College who had received Royal honours during the past year. He also referred to the awards of medals, prizes, and scholarships by the College and drew attention to the Harveian oration and the lectures which had been delivered at the College. He mentioned the gifts to the College, particularly that of the late Mr. Charles Coates of Bath who gave £1000 for the purposes of the hospitality of the College. The financial condition of the College was satisfactory. He alluded to the increased number of colonial graduates who had applied to be admitted to the examinations, and also to the action which had been taken to oppose the charter or certain of its clauses which was being asked for by the British Medical Association. The President then proceeded to read obituary notices of those Fellows who had died during the past year:—Dr. C. J. Cullingworth, Dr. Edwin Rickards, Dr. B. L. Abrahams, Dr. Henry Ashby, Sir Thomas Stevenson, Sir Henry A. Pitman, Dr. Charles E. Beevor, Dr. Peter Horrocks, Mr. Charles Coates, and Dr. Arthur Gamgee. He concluded by expressing his thanks to the officers, censors, and Fellows of the College for the services which they had rendered him during his year of office.

The SENIOR CENSOR (Dr. NORMAN MOORE) moved, and the SECOND CENSOR (Dr. F. DE HAVILLAND HALL) seconded, that the President should permit his address to be printed. This was carried and the request was acceded to.

Sir R. Douglas Powell then vacated the chair. A vote of thanks to him for his services during the past year was moved by Sir W. S. CHURCH and seconded by Dr. C. THEODORE WILLIAMS, and carried with acclamation.

The election for President then took place, when Sir R. Douglas Powell was re-elected by a very large majority. The charge and insignia were delivered by the SENIOR CENSOR. The PRESIDENT then gave his faith to the College, and thanked the Fellows for the honour once more conferred upon him.

The following communications were received: 1. From the secretary of the Royal College of Surgeons of England, reporting the proceedings of its council on Feb. 11th and April 1st last. 2. From Miss Amy Maxwell, offering through Sir William Allchin for the acceptance of the College a photographic copy of a miniature portrait of her grandfather, Dr. Anthony Todd Thomson, a former Fellow of the College. The gift was accepted and the thanks of the College were ordered to be returned to the donor.

After some discussion the following by-law for the admission of women to the examinations of the College for qualifications was enacted for the first time:—

Women shall be eligible for admission as Licentiates and Members of the College and for the grant of a Diploma in Public Health on the same terms and conditions as men, and so far as is necessary to give effect to this by-law, words in the by-laws and regulations importing the masculine gender shall include females, and all proper alterations shall be made in the forms of the Letters Testimonial and the Licence granted by the College. *Provided always* that women shall not be eligible for election as Fellows of the College or be entitled to take any part in the government, management, or proceedings of the College.

A communication was received from the Harveian librarian (Dr. J. F. Payne) on a proposed commemoration of the 400th anniversary of the birth of Dr. Caius, formerly President and benefactor of the College. Negotiations were proceeding with Gonville and Caius College, Cambridge, for reprinting some of Caius's works.

A report from the Committee of Management, dated March 9th, was received and adopted. The report recommended that the University of St. Andrews be added to the list of institutions at which the complete curriculum of professional study required for the diplomas of the Royal Colleges may be pursued and whose graduates may be admitted to the final examination of the Examining Board in England, on production of the required certificates of study.

The PRESIDENT then dissolved the Comitia.

THE MEDICAL INSPECTION OF LONDON SCHOOL CHILDREN.

THE London County Council at two recent meetings had under consideration an important report signed by its Education Committee in December last and containing the recommendations of its subcommittee appointed in July, 1907, to inquire into: (1) the existing provision for the medical treatment of the Council's school children; (2) the extent to which this provision could be rendered more available by the action of (*a*) the hospitals, (*b*) the Council; (3) what additional provision, if any, is desirable; and (4) how this provision should be supplied. The Council had also before it a comment by the Finance Committee upon this report, of which we now print a summary together with a short account of the Council's debate upon the matter. The subcommittee who presented the report was constituted as follows:—*Members of the Council or of the Education Committee*—The Chairman of the Education Committee, the Vice-Chairman of the Education Committee, Miss N. Adler, Mr. A. A. Allen, Dr. R. M. Beaton, Mr. S. J. G. Hoare, Mr. E. A. H. Jay, Miss A. Susan Lawrence, the Hon. H. Lygon, Mrs. Wilton Phipps, Dr. A. Salter, Major Skinner, and Mr. Graham Wallas. *Representatives of outside institutions*—Mr. Norman G. Bennett (British Dental Association), Sir Victor Horsley (British Medical Association), Dr. Sidney Phillips (Central Hospital Council for London), Dr. Charles Gray (Charity Organisation Society), the Right Hon. Lord Cheylesmore, C.V.O. (Metropolitan Hospital Sunday Fund), Mr. Douglas Owen (London Hospital), Mr. Robert J. Bland (Royal London Ophthalmic Hospital), and Dr. H. Morley Fletcher (St. Bartholomew's Hospital). This subcommittee held ten meetings, at which the following witnesses were examined:—Mr. Herbert Parsons, Dr. J. H. Sequeira, the late Dr. L. Abrahams, Mr. P. Macleod Yearsley, Mr. Wallis, Mr. Bishop Harman, Miss Wright (head mistress of Shepperton-road L.C.C. school), Miss Foxlee (head mistress of Haseltine-road L.C.C. school, and formerly head mistress of Waterloo-road L.C.C. school), and Miss E. M. Phillips (head mistress of Hanbury-street L.C.C. school), Mr. Warren, and Mr. Hancock Nunn. It also considered a report of the section of the day schools subcommittee on the work of the medical officer, memoranda by Mr. Norman Bennett, Mr. Herbert Parsons, and Mr. Bishop Harman, a memorandum prepared by the British Dental Association, and a report from Dr. G. Cunningham on the working of the Cambridge School Dental Clinic.

The following inquiries were addressed to 50 hospital authorities in a circular letter:—

(i.) What number of children of school age is being treated at the hospitals.
(ii.) What number could be so treated.
(iii.) What number of cases falling under the following heads could be dealt with:—(*a*) refraction, (*b*) discharging ears, (*c*) chronic parasitic diseases, (*d*) dental.
(iv.) What measures are adopted in the hospitals for relief of the large number of chronic debilitated children suffering from various superficial troubles of eye, ear, and nose, lack of nutrition, and nervous debility.
(v.) Whether the hospital authorities are satisfied with what they are able to do in regard to children with tubercular bone diseases.

A further letter was addressed to 198 hospitals, dispensaries, and kindred institutions within the county, asking,

(i.) What number of children under 14 was treated during the years 1906 and 1907 for various ailments of the teeth, distinguishing between treatment (*a*) for preservation; (*b*) extraction of teeth?
(ii.) What number of children under 14 was treated during the years 1906 and 1907 for various affections of the eyes, distinguishing between (*a*) errors of refraction; (*b*) actual diseases?
(iii.) What accommodation exists for the treatment of children under (i.) and (ii.) respectively?
(iv.) Would it be practicable (*a*) to treat larger numbers of children during the regular hours of work of the institution; or (*b*) to use the institution under special arrangements outside the regular hours for the exclusive treatment of elementary school children.

Fifty-eight satisfactory replies were received to these two letters and have been summarised for the information of the Council. The summary and recommendations made by the subcommittee in reply to the first three questions submitted for their consideration were as follows:—

1. Such facilities as exist for the medical treatment of school children are provided by hospitals, dispensaries, infirmaries, &c., and the general practitioner.

2. Many of the above-mentioned institutions with their existing accommodation can do no more so far as the treatment of the cases indicated is concerned. Some could do more if assisted from public funds; others could do no more whether assisted or not.

3. We think that, generally, sufficient accommodation exists to deal with the graver cases that require operative treatment. On the other hand, as regards the more ordinary ailments of children a large amount of routine work is necessary, the provision for which is inadequate and in many parts of the county non-existent.

Our findings with regard to teeth, vision, ringworm, favus, suppurating ears and adenoids, debility and tuberculosis are as follows—

(a) Teeth.

(1) That there is a prevalence of dental caries among children attending public elementary schools, and that the existing accommodation in the hospitals and dispensaries, for even simple dental examination and treatment is wholly inadequate. (2) That it is desirable that provision should be made for simple dental treatment of school children. (3) That it is desirable that instruction in the hygiene of the teeth should be given to school children and to their parents or guardians. (4) That it is desirable that the daily use of the tooth-brush by children in their homes be encouraged. (5) That it is desirable that from time to time children be examined as to the cleaning of their teeth.

(b) Vision.

(1) That a large number of children are suffering from defective vision. (2) That both their ability to profit by school instruction, and, in many cases, their physical health, are prejudicially affected. (3) That neglect or delay in treatment may be attended by chronic or permanent disability. (4) That, owing to the large number of cases, the existing provisions for their examination and treatment are inadequate; and further, that the delay and loss of time suffered by parents seeking, often from a distance, hospital treatment for the children affected frequently result in the children not being treated at all. (5) That the existing accommodation in the hospitals and dispensaries for such treatment is inadequate. (6) That all cases treated should be re-examined every other year. (7) That additional provision is desirable for the treatment in the vicinity of the school of all children suffering from errors of refraction.

(c) Ringworm.

(1) That, owing to this obnoxious and contagious disease, many children, estimated at 2950 annually in regular attendance, are prevented from attending school and expose others to infection at home. (2) That the cure of the disease by lotions and ointments is a process occupying many months, or in some cases even several years, the patient being meanwhile prevented from attending an ordinary school and remaining a source of infection. (3) That the disease is now capable of being cured rapidly by x ray treatment, the child ceasing at once to be a source of infection and able to resume school on the re-growth of its hair. (4) That, owing to the fact that x ray treatment is provided only at a few hospitals, where its use is greatly in demand for a variety of adult and other diseases, the treatment is available only to a very limited extent for ringworm cases. (5) That the delay and loss of time suffered by parents seeking, often from a distance, treatment for the children affected frequently results in unwillingness to submit the child for treatment, the child meantime remaining a source of infection. (6) That by means of the x ray treatment the disease can be practically stamped out, thus rendering unnecessary the present schools specially maintained for children suffering from it. (7) That provision is desirable for the treatment of the disease by x rays at a fixed centre or centres. (8) That power shall be given to compel the attendance of children for treatment immediately on discovery of the disease.

(d) Favus.

(1) That the present special treatment of cases of favus disease in one special school should be continued.

(e) Suppurating Ears; Adenoids.

(1) That cases of suppurating or discharging ears are greatly prevalent amongst children, about 1 per cent., or 7500 children, being thus afflicted, more especially those in insanitary surroundings. (2) That neglect of the complaint frequently results in deafness or defective hearing, and sometimes in consequence is dangerous to health or even life; in most cases the child being more or less disqualified from profiting by the school instruction. (3) That the cure of such cases involves skilled syringing of the ears daily as well as dressings. (4) That such treatment cannot in most cases be given at the child's home, and cannot be undertaken by the hospitals, even if the parents were able and willing to take the child there for treatment. (5) That provision is desirable for the proper treatment of suppurating ears in the immediate vicinity of the school. (6) That any cases requiring operation or treatment other than as above described, and all cases of enlarged tonsils or adenoids calling for operation, should be referred to hospital or private treatment.

(f) Debilitated Children.

(1) That a considerable number of children living in insanitary conditions are so debilitated as to be unable fully to profit by instruction in school, or attend without further deterioration. (2) That such children especially succumb to tubercular infection as well as other diseases. (3) That it is desirable that further provision be made of schools on the lines of the existing open-air day schools at which debilitated children could be admitted by the local education authority for short periods.

(g) Tuberculosis.

(1) That tubercular disease with its consequences disqualifies children, if able to attend school, from taking due advantage of school instruction. (2) That many cases discharged after treatment from hospital, and other cases not treated in hospital or convalescent home, require rest and sanitary surroundings for their effective and permanent cure. (3) That the disease could, in a large number of cases, be arrested or cured if such means were provided for its treatment in the earliest stages, and that it is of the first importance that it should be so treated. (4) That children in whom tubercular disease of the bones or joints is detected should be sent to their private practitioner or to hospitals for treatment.

With regard to Question 4, the subcommittee presented reasoned argument as to whether the requisite additional treatment should be provided by (1) setting up school clinics under the immediate supervision of the local authority, or (2) utilising existing types of institutions, giving, if necessary, financial assistance. It found that the latter course was contemplated by the Act of 1907, and added: Further, the Board of Education Circular, 596, p. 8, draws special attention to the powers referred to in this proviso under the heading "Contributions to Hospitals, Infirmaries, Dispensaries, &c.," and goes on to state, "The Board of Education consider that, before the direct treatment of ailments is undertaken by the local education authority, whether by means of a school clinic or by themselves supplying and paying for medical treatment, full advantage should be taken of the benefits of such institutions." The Board will be prepared to entertain proposals for contributing to the funds of hospitals, dispensaries, and nursing associations on terms of adequate advantage. Such contributions are specially desirable in the case of eye hospitals and cottage hospitals which are prepared to undertake minor surgical operations. It is permissible to include among the conditions of contribution a provision allocating a reasonable remuneration to the medical men working for such institutions. On p. 9 the circular continues: "The establishment of school clinics for purposes of treatment of defects revealed by inspection gives rise on the other hand to questions of considerable difficulty," which are then set out. After further comments the subcommittee made the following recommendations:—

(a) That, as the existing provision of private and hospital practice sufficiently meets the requirements in the case of children requiring operative and in-patient treatment (who are thus removed from the direct purview of the educational authority), no further steps be taken in respect of this class.

(b) That to supply the additional provision for the medical treatment of school children which has been found desirable, the Council should utilise institutions of the types now existing, giving financial help, if necessary, and receiving special facilities in return for any grant of public money, but that in districts where no suitable institution exists, and where within a reasonable time it shall have been found impossible to make the necessary provision by an extension of existing institutions the Council should consider whether, in default of other means, it shall make the provision itself, and that it be referred to the Education Committee to report further on the matter.

(c) That the report of the Education Committee on the medical treatment of children, and the statements (Nos. 1 (I.-III.)) separately submitted on 30th March, 1909, be placed on sale and circulated in the usual manner.

This report was referred to the Finance Committee of the Council, which at the Council's meeting on March 30th presented its comments upon the proposals of the Education Subcommittee. The Finance Committee referred to the reception by the Prime Minister and Chancellor of the Exchequer of a delegation of local education authorities from England and Wales, to which he held out no hope that any increased grant could be made at present from the Exchequer in connexion with medical treatment. The Finance Committee concluded its remarks with this warning:—

In connexion with the general question whether the Council should undertake the medical treatment of children it should be borne in mind that the education rate is rising and that it must, under present conditions and in the absence of increased Government grants, continue to rise, this being due amongst other things to the automatic increases in teachers' salaries, the cost of feeding necessitous school children, the new duty imposed on the Council of the systematic medical inspection of all children in elementary schools, and other matters to which the Council is committed. It should also be remembered that pressure is being brought to bear upon the Council to increase its expenditure in connexion with education in various other directions, amongst which the question of a complementary superannuation scheme for teachers may be mentioned. The question which naturally arises is whether there is not a limit to the burden which the ratepayer should be called upon to bear in connexion with education, and whether, as between the many objects desirable in themselves which go to make that burden unduly heavy, it will not be necessary for the Council to make a selection.

Mr. JACKSON moved the adoption of the Education Committee's recommendation:—

That to supply the additional provision for the medical treatment of school children which has been found desirable, the Council should utilise institutions of the types now existing, giving financial help, if necessary, and receiving special facilities in return for any grant of public money, but that in districts where no suitable institution exists,

and where within a reasonable time it shall have been found impossible to make the necessary provision by an extension of existing institutions, the Council should consider whether, in default of other means, it shall make the provision itself, and that it be referred to the Education Committee to report further on the matter.

Mr. Jackson mentioned that it was hoped shortly to have a conference of hospital chairmen and secretaries to discuss what could be done by the hospitals and what the Council could do to help them. He was bitterly disappointed that the Prime Minister had received so unsympathetically the Council's request for increased grants to meet the cost of medical treatment, but even without Government assistance they must make some efforts to deal with the appalling state of affairs which the committee had found to exist. He could not advise the Council to undertake full treatment, important and necessary though it was. Dental treatment was the most expensive, with the exception perhaps of ringworm, and in order to make a start the Council should undertake treatment of ringworm, suppurating ears, and defective vision. In making the arrangements with voluntary institutions which the committee suggested he hoped that dispensaries would not be overlooked. Dispensaries had sometimes been the subjects of unfair attacks. The Council should also extend its interest to friendly societies, which had done so much for the sick poor.

Mr. HAYES FISHER, whilst declaring himself in hearty concurrence with the policy of the Education Committee, moved a long amendment which declared that the Council is of opinion that certain diseases of children should be treated, and referred it to the Education Committee to report as to the cost of treating each of the diseases mentioned in its report and as to the steps necessary to be taken to amend the Education (Administrative Provisions) Act, 1907, to enable the Council to recover the cost of medical treatment from parents able to pay. Mr. Fisher's idea was that with the cost of treating each disease ascertained the Council could say which it would undertake. Without going so far as to say they would never treat the children's teeth, he did think they ought to wait until they had power to recover the cost from parents.

The subsequent proceedings were curious in view of Mr. Hayes Fisher's declared sympathy with medical treatment. His seconder, Mr. GRAY, talked the motion out. The debate stood adjourned until the next meeting of the Council.

At the same meeting the modified scheme of medical inspection approved by the Board of Education, to which we referred in THE LANCET of March 27th, was received. Mr. Johnson and Mr. Jephson had amendments on the paper, but they withdrew them after protesting that the scheme was inadequate.

The debate was resumed on April 6th, when it was announced that the Education Committee adopted Mr. Hayes Fisher's amendment.

Dr. SALTER thereupon moved the reference back with instructions to the committee to submit a detailed scheme for the establishment of school clinics. He urged that London hospitals were so distributed that they could not provide medical treatment for the children in many districts. The whole weight of medical opinion in London and England, of the dental profession, and of the British Medical Association was unanimously in favour of school clinics.

Mr. BRAY, who seconded, criticised the proposal of the Education Committee to recognise juvenile friendly and other benefit societies. He objected to the teachers and the organisation of the schools being used to canvass on behalf of these societies and for the ultimate abolition of the private practitioner.

Mr. C. U. FISHER pointed to the passing of the Education Act of 1870 as the first step in the undermining of parental responsibility. He looked with suspicion on the employment of medical men and dental surgeons by the Council because, although the fees paid might be small at first, they tended to increase.

Mr. ERNEST GRAY, who spoke again on the amendment, took the same line. He seriously distrusted estimates of the cost of medical treatment prepared by the medical profession.

Mr. A. A. ALLEN, M.P., supported clinics because he believed they would be in the long run the cheapest and the most efficient. Mr. Allen put forward an estimate of the cost of medical treatment based on his own calculations. The Council at present engaged medical men for quarter time—three half-days a week or nine hours—at £150 a year each. On that basis it would be possible to deal with 6000 to 7000 dental cases per annum and half that number of eye cases in one clinic. If 12 clinics were established, 70,000 to 80,000 dental cases could be treated and about half that number of cases of defective vision. The cost would be about £25,000 per annum.

The amendment was lost by 75 votes to 42.

Dr. BEATON moved a further amendment requiring that a scheme should be prepared immediately providing for medical treatment "by taking advantage of institutions at present in existence and establishing school clinics where other provision is inadequate." Dr. Beaton said a word in defence of dispensaries, which several members had criticised, and, with reference to the amendment, urged that if aid were given to hospitals and school clinics were established as well, it would be possible with the two systems going on side by side to decide which was the better.

This amendment, however, was also defeated, and Mr. Hayes Fisher's proposal was carried. The Education Committee will therefore prepare another report going into the question of cost.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on April 1st, Mr. HENRY MORRIS, the President, being in the chair.

The SECRETARY reported the death of Mr. James Hardie, a past member of the Council, and a vote of condolence with his relatives was passed.

On the recommendation of the Museum Committee it was resolved to request Dr. R. T. Leiper to undertake the revision and renovation of the collection of entozoa.

The Jacksonian prize was awarded to Mr. J. P. Lockhart Mummery for his dissertation on the Pathology and Treatment of those Conditions and Diseases of the Colon which are relievable by Operative Measures. Mr. Mummery was requested to attend the ordinary meeting of the Council on May 13th to receive the Jacksonian prize.

The Council decided that the subject for the Jacksonian prize for the year 1910 should be Tuberculous Disease of the Urinary Bladder and Male Genital Organs.

The triennial John Tomes prize was awarded to Mr. Arthur Swayne Underwood for his original and other scientific work on dental anatomy, surgery, and pathology.

The best thanks of the Council were given to Dr. Norman Moore for his services as visitor to the examinations of the Egyptian Medical School at Cairo.

The Senate proceeded to the election to the Fellowship of Members of 20 years' standing, and the two following were elected—Sir Shirley Forster Murphy, medical officer of health of the Administrative County of London, and Mr. George Dancer Thane, professor of anatomy at University College, London.

Mr. H. H. Clutton was reappointed one of the two representatives of the College on the Senate of the University of London for a further period of four years.

The best thanks of the Council were given to Mr. J. Ward Cousins for his report of the proceedings of the Central Midwives Board, and for his very efficient services as the representative of the College on that Board during the past six years. Mr. C. H. Golding-Bird was elected representative of the College on the Central Midwives Board in the vacancy occasioned by the retirement of Mr. Ward Cousins.

The new by-laws were approved and signed.

Sir Jonathan Hutchinson was nominated as the delegate of the College to the University of Geneva on the occasion of the celebration of the 350th anniversary of its foundation.

The PRESIDENT stated that Mr. A. Pearce Gould's period of office on the Court of Examiners would expire on May 12th next, and that the vacancy thus occasioned would be filled up at the ordinary meeting of the Council on May 13th.

Diplomas of Member were conferred upon the following gentlemen who have passed the necessary examinations and have now complied with the by-laws: George Aldon Greaves, M.D., C.M. Queen's University, Kingston, of Queen's University and London Hospital; and Arthur Salusbury MacNalty, B.A., M.B., B.Ch. Oxon, Oxford University and University College Hospital.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 9th, 1831.

ACADEMIE NATIONALE, PARIS.

OBLITERATION OF THE VAGINA BY THE INJECTION OF SULPHURIC ACID TO PRODUCE ABORTION.—CÆSARIAN OPERATION.—DEATH.

THIS singular case is detailed in a letter addressed to M. Guerin, it occurred in a married woman, the mother of four children, and pregnant of a fifth. At the commencement of her pregnancy, she was induced by a female neighbour to inject sulphuric acid into her vagina, as an extremely easy mode of inducing premature labour; dreadful inflammation set in, the parts swelled, great general disturbance ensued, and finally the vagina was so effectually obliterated that she could no longer endure the embraces of her husband; nevertheless, she kept the circumstance a secret till the full term of her gestation was expired. The medical men on examination found that a kind of irregular band surrounded and obstructed the vagina, beyond which, and on the brim of the pelvis, the head of the infant was distinctly felt, pressed forward by the uterine contractions. It was resolved to make an incision through the dense membrane, but when this was done, it was found that it adhered to the bladder, which the incision had completely divided. The delivery was not at all facilitated, and the attendants felt themselves compelled to perform the Cæsarian section. The infant was extracted, dead, apparently for some time, and the mother immediately expired.

BRITISH MEDICAL BENEVOLENT FUND.

AT the March meeting of the committee 23 cases were considered and grants amounting to £185 made to 19 of the applicants. Appended is an abstract of the cases relieved:—

Daughter, aged 45 years, of late M.D. Lond. Underwent a serious operation about a year ago and is unable at present to earn a living. Income only a few shillings a week. Relieved once, £5. Voted £5.

Widow, aged 34 years, of M.R.C.S. Eng., L.R.C.P. Edin. Quite unprovided for at recent death of husband. One child, four and a half years old. Hopes to obtain a situation as housekeeper, but health has suffered greatly from nursing her husband during the two years' illness which preceded his death. Voted £10.

Widow, aged 55 years, of L.S.A. No income. Eight children, but only able to give slight help. Proposes to move so as to decrease her rent. Relieved ten times, £115. Voted £5 for moving.

Widow, aged 62 years, of L.F.P.S. Glasg. No income. Four children, but none able to help at present. Used to let lodgings. Voted £12.

Widow, aged 38 years, of M.B., Ch.B. Left quite unprovided for a few months after marriage and lives with her mother, aged 72 years, who can ill afford to help. Health at present too indifferent to allow of permanent occupation. One child, aged four years. Voted £5.

Daughter, aged 50 years, of late M.D. Aberd. Has supported herself for many years by giving music lessons, but finds increasing difficulty in obtaining pupils. Is in bad health and ordered to take a rest. Voted £6.

Daughter, aged 44 years, of late L.R.C.P. Edin. Used to be a dressmaker, but employers retired from business and applicant has found it impossible to get regular work since. A little help from a friend and earns as much as possible by sewing. Relieved four times, £40. Voted £6.

Widow, aged 60 years, of L.R.C.S., L.R.C.P. Irel. Lost everything through the failure of a bank, and is now in a very precarious state of health. No income; helped by a sister, who herself has to earn a living. Relieved twice, £24. Voted £12.

Widow, aged 59 years, of L.S.A. Lets lodgings; five children but only able to give very slight help. Relieved seven times, £80. Voted £10.

Widow, aged 51 years, of L.R.C.P., L.R.C.S. Edin. Quite unprovided for at husband's death a few years ago. Obtains shelter as a caretaker but receives no remuneration. No children. Relieved five times, £46. Voted £12.

Widow, aged 64 years, of M.D. Glasg. No income and for several years has been practically dependent on this Fund and the Ladies' Working Guild. Relieved nine times, £104. Voted £10.

Widow, aged 50 years, of M.R.C.S. Eng., L.R.C.P. Edin. Kept a boarding house and nursed her husband for several years previous to his death, but is now in such bad health that she is entirely dependent on her friends and a couple of sons who are only just self-supporting. Relieved six times, £82. Voted £10.

Widow, aged 44 years, of M.R.C.S., L.R.C.P. Has a small annuity, but is in such bad health that it is insufficient for unavoidable expenses. Two children, aged 14 and 12 years. Relieved five times, £72. Voted £12.

Daughter, aged 54 years, of late L.F.P.S. Glasg. Unable to obtain regular employment on account of ill health. Only income £10 a year from the Scottish Indigent Gentlewomen's Fund. Relieved twice, £24. Voted £12.

Widow, aged 48 years, of M.R.C.S., L.S.A. No income, endeavours to support herself by needlework and receives a little help from friends. Two children, aged 22 and 15 years. Relieved six times, £71. Voted £12.

Daughter, aged 52 years, of late M.R.C.S., L.S.A. No income and in very feeble health. Receives a little help from a sister. Relieved 11 times, £125. Voted £12.

Widow, aged 68 years, of M.D. Aberd. No income. Children unable to help. A little assistance from friends. Relieved eight times, £102. Voted £12.

Daughter, aged 60 years, of late M.R.C.S. Had a post as companion but was obliged to give it up to nurse two sisters who have since died. Hopes to obtain boarders and is made a small allowance by a relation. Relieved twice, £30. Voted £12.

Widow, aged 51 years, of M.D. Edin. No income. Children help as far as possible and applicant earns a little by needlework. Relieved three times, £30. Voted £10.

Mr. W. E. Sargant, St. Bartholomew's Hospital, E.C., is the honorary secretary to the Fund, and Dr. Samuel West the honorary treasurer.

MEDICINE AND THE LAW.

The Sanitary Oath.

A PRIVATE Member's Bill, having for its object the general introduction of the Scottish form of administering the oath to witnesses and others, has been introduced in the House of Commons, and apparently as it has been read a second time it may in due course become law. It is now open to a person to whom an oath is administered, if he so desires, to swear in the Scottish fashion, and thus to avoid kissing a dirty and possibly dangerous Testament. Under the Oaths Act, 1888, however, which permits this, judges and others before whom oaths are administered to witnesses either do not consider themselves justified in ordering the oath to be taken in a sanitary manner or are indifferent upon the subject, and sometimes they have been inclined to be contemptuous towards witnesses who, if they desire not to kiss the Book, are obliged to express their objection to doing so. The Bill referred to above does not do away altogether with the old form by forbidding it and by prescribing a new one in its place, but seeks to enact as follows:—

Any oath may be taken by uplifted hand in the same form and manner in which it is usually administered in Scotland, and the court or officer may (unless the person about to take the oath voluntarily objects thereto) administer the same in such form and manner without question: Provided always, that the Court or officer may administer the oath aforesaid by addressing the witness, jury, or deponent in the second person in the words thereof and obtaining his or their concurrence thereto without requiring the witness, jury, or person to repeat the words of such oath.

The reason is not plain for making the use of the new form permissive only, in preference to making it obligatory, at any rate in courts of law, unless objected to. In this case commissioners of oaths might have been left to follow the example set, or to continue to give those swearing affidavits Testaments to kiss, unless they expressed preference for the Scottish form. Why anyone should prefer to kiss a book to abstaining from doing so is not clear, but the new Bill seems to assume that some will display this strange taste, and there does not seem to be much harm in providing for its gratification. As matters stand it is apparently expected that the clause quoted above will serve the purpose desired and render the Scottish oath more or less universal, with the modification that it may be administered in the second person. In the new circumstances contemplated the officer of the court will presumably commence his adjuration by saying "Do you swear by Almighty God," and the witness or juror having listened to the statement of that to which he is to bind himself will concur by saying with uplifted hand, "I do" or possibly "I swear." It would have been as clear and more convenient to have printed the words to be used in the Bill instead of referring to the practice of Scotland, but Parliamentary draughtsmen seem to take a pleasure in the introduction of references to existing laws or customs wherever they are possible. Allusion has been made so often in THE LANCET to the dangers arising out of kissing the Book that no more need be said here on the subject. It may, however, be useful to remind Members of Parliament, who may be indifferent upon the matter, of a fact recently referred to by Mr. F. W. Lowndes, in a paper read by him at the Liverpool Medical Institution. He reminds us that some years ago Lord Collins (then Mr. Justice Henn Collins),

in two criminal trials heard by him, the one at Liverpool, the other at the Central Criminal Court, found that witnesses who had given evidence were suffering from syphilis, and ordered the Testaments which they had kissed to be at once destroyed. The attention thus called by his lordship to an unclean practice may be found to have contributed to its abolition, but this will have taken a long time to compass. Protests against the old method have been constantly uttered by the medical profession for more than 20 years, and none has been more persevering or more forcible in expressing them than Mr. Lowndes, to whose recent utterance on the subject reference has been made.

Liability of Hospital Governors.

The case of Hillyer *v.* The Governors of St. Bartholomew's Hospital, which came before Mr. Justice Grantham and a special jury last week, was one of a most unusual kind. The facts were briefly these. The plaintiff, a medical man, sought to make the defendants, the Governors of St. Bartholomew's Hospital, liable for alleged negligence in conducting an operation upon him at the hospital resulting in injury to his arms by burning and pressure. Sir Isambard Owen, consulting physician of St. George's Hospital, said that he had known the plaintiff for some time. He was a man of remarkable physique. Previously to the operation he was only suffering from sciatica. He examined him after the operation. He was suffering from an injury resembling a burn on the inside of the left arm, with paralysis of that arm, atrophy of the muscles, and intense pain. The injury to the right arm was less serious, but there was reason to fear that the full use of the left arm and hand would never be recovered. One of the most elementary maxims of surgery was that the arms of a patient under an anæsthetic should not be allowed to hang down from the operating table in such a position that anything could press upon them. He saw nothing in the plaintiff to suggest that he was in the habit of taking overdoses of morphine. Malarial fever might create a predisposition to neuritis. Sciatica was a form of neuritis of the sciatic nerve, or the sheath of it, but sciatica would not predispose to neuritis in another part of the body. Neuritis was not a very usual result of a burn. Paralysis produced by pressure would show itself at once. It might last for months. The plaintiff had been for some time in 1904 and 1905 at a mine on the Gold Coast. In 1906 he had whilst in England two sharp attacks of sciatica, and in March, 1907, he went into St. Bartholomew's Hospital. He was examined under an anæsthetic. When he returned to consciousness he found his left arm absolutely paralysed and the movements of his right arm much impaired. He spoke to the warden and house surgeon and they told him that his arms had not been supported when he was under the anæsthetic, and they could not account for the burn on the left arm unless it had come in contact with the hot water apparatus. After some months his right arm got better, but he suffered such intense pain in the left arm and shoulder that he was in bed for about a year, movement being intolerable. The left arm remained atrophied and practically useless and he would never be able to practise again. His lordship said that the plaintiff had not proved a case of negligence, therefore there must be judgment for the defendants. The question of the liability of trustees and governors of public institutions in the case where negligence of the medical men they employ has been demonstrated was therefore not discussed. This point does not appear to have often come up before the high courts of this country for decision. If, therefore, the case should go to appeal, the decision would be of great interest to all medical men. The fact that the sufferer in this case was himself a medical man, with whose sad plight we must all be in sympathy, should not blind us to the other fact that the great charity of St. Bartholomew's freely gave its services to him. But apart from the particular circumstances, there is no doubt that the case raised a question of great importance which remains for settlement.

MEDICAL CHARITIES.—As a result of the recent performances of *The Gondoliers* by members of the Exeter Amateur Operatic Society, the sum of £100 has been handed to the treasurer of the Royal Devon and Exeter Hospital, and £50 have been given to the West of England Eye Infirmary.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Borough of Sutton Coldfield.—Dr. A. Bostock Hill advised the closing of four schools in this district during 1908, but he adds that, except in special cases, he is not in favour of this measure, as he is satisfied that very frequently better results in the public interest can be brought about by the exclusion of definite or suspected cases. There is no doubt that no hard-and-fast rule can be laid down and that the question of school closure has to be determined after a careful consideration of all the circumstances. In a rural district, for instance, it may suffice to exclude the children from one hamlet or village or to close one department only of the school. The mistake which has been frequently made in the past is that sufficient intelligence has not been exercised in the matter, the occurrence of a few cases of infectious diseases having led forthwith to school closure. Alluding to the subject of vaccination Dr. Hill pays a tribute to the work of the vaccination officer who has succeeded in getting 324 cases out of 404 births vaccinated. But 28 parents applied for and received exemption certificates, as compared with eight in the previous year. As Dr. Hill points out, if this exemption process goes on not only will there be many more people unprotected against small-pox but the corporation will have to provide more money for isolation and treatment. This is the unfair side of this exemption business—i.e., that those who have obeyed the law and protected themselves against the disease have to pay rates for the isolation and treatment of the "conscientious" abstainers. It would be more in keeping with equity were those who were successfully vaccinated and revaccinated exempted from any payment of rates relative to a small-pox hospital. There would then be less objection to allowing the ignorant to go as they please in this matter. We want in this country a little of the backbone of the German people who have practically banished both small-pox and small-pox hospitals from their midst.

Reigate Rural District.—Dr. Arthur E. Porter has written a good report upon this district and he is evidently alive to certain matters which are not always called attention to in reports on rural districts. The subsoil in the northern portion of this district is chalk, and the medical officer of health states that a method of sewage disposal which is finding favour with property owners is to connect the interior of the cesspool with the chalk. By this is apparently meant that the cesspool is not rendered impervious or, if it is so rendered, an early opportunity is taken of rendering it pervious. As Dr. Porter observes, the arrangement is convenient but it may provide epidemics of water-borne enteric fever for subsequent generations, and he refers to a recent report of a Local Government Board inspector relative to the abandonment of chalk wells supplying what he terms a "certain East Anglian town." We have been wondering whether Cambridge is in East Anglia. Part of the Reigate district drains eventually in the Thames and the Londoner reads with pleasure of the activity of the Thames Conservancy in the matter of controlling pollution even at this distance from the intakes of the London water-supply. The immunity of London from water-borne epidemics is, having regard to the large number of sewage effluents which enter the Thames, a testimony to two things—the filtration of the Metropolitan Water Board and the purifying forces of nature. In the Reigate rural district considerable vigilance appears to be exercised over the local slaughter-houses, and Dr. Porter reports that the sanitary inspector during a house-to-house inspection of one of the parishes discovered an unregistered slaughter-house which had been in use for about 13 years. We imagine that house-to-house inspections in other rural districts might lead to similar discoveries, as well as to the detection of numerous cowsheds and dairies which have never been registered. The district council in question has adopted certain sections of the Public Health Acts (Amendment) Act, 1890, and new slaughter-houses are now only granted short terminable licences—an example which might be well followed by other rural districts.

St. Annes-on-the-Sea Urban District.—During July of last year there was in this district an outbreak of food poisoning

which was attributed to the consumption of potted meat and pork pies which had been procured from a local confectioner, and the bacillus enteritidis of Gaertner was discovered in the foods. Some 80 persons were attacked, the more severe cases manifesting abdominal pain, vomiting, diarrhœa, and collapse; there were three deaths. It is not quite clear how the food became affected, but possibly the assistants at this shop were first attacked by the malady and this may have infected the food. Dr. F. Booth, the medical officer of health, has drawn up some regulations for food purveyors, and doubtless such purveyors will now be kept under observation. Three cases of enteric fever were attributed to shellfish, but the dates of consumption are not furnished and the source of the shellfish is not stated. One case is attributed to defective drains. A qualified veterinary inspector was appointed last year, and one of his duties is to examine all the milch cows in the district every three months.

Plympton St. Mary Rural District.—Mr. S. Noy Scott, in referring to the subject of the medical inspection of school children, expresses regret that the county council of Devon did not appoint as school officers such medical officers of health as were willing to undertake the work. He thinks that such a procedure would have been a great step forward, as it would have prepared the way for the appointment of whole-time medical officers of health who would be independent of private medical practice or local prejudice. He regards the present position in the county of Devon as an anomalous one because he is compelled by the Local Government Board to report on, and to be to some extent responsible for, the sanitary condition of the schools; and, while he is the only legally qualified officer who can advise the district council to close the schools, there is an officer appointed by the county council to inspect the scholars over whom he has no authority.

Thingoe Rural District.—Dr. Charles Scott Kilner has instituted a house-to-house inspection of this district, a course which should prove helpful not only as regards the private houses of the poorer classes but as a means of ascertaining the presence of unregistered slaughter-houses and cowsheds. Although these house-to-house inspections in rural districts call for the exercise of great tact and discretion they cannot fail to be helpful both to the officers and to the district council, and we are glad to see that they are now becoming much more general in rural districts than was the case formerly.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon E. R. D. Fasken to the *Terrible* and for Division of Special Service Vessels, Portsmouth.

ARMY MEDICAL SERVICE.

Colonel Jules I. Routh, half-pay list, is placed on retired pay (dated March 29th, 1909).

ROYAL ARMY MEDICAL CORPS.

Captain W. F. Tyndale, C.M.G., has been posted to the Southern Command.

TERRITORIAL FORCE.

Yeomanry.

Warwickshire: Surgeon-Major Roger Bullock is granted the honorary rank of Surgeon-Lieutenant-Colonel (dated March 31st, 1908).

Royal Army Medical Corps.

1st West Lancashire Field Ambulance: Captain Archibald G. Gullan to be Major (dated Dec. 19th, 1908).

1st Northumbrian Field Ambulance: Arthur Gibson Dunn to be Lieutenant (dated Oct. 21st, 1908).

3rd Wessex Field Ambulance: Lieutenant Frederick Ernest Stokes, from the Royal Army Medical Corps, Territorial Force, to be Lieutenant (dated May 19th, 1908).

Lieutenant-Colonel John M. Harper is granted the honorary rank of Surgeon-Colonel (dated March 31st, 1908).

For attachment to Units other than Medical Units.—Arthur Roberts (late Lieutenant, Berkshire Imperial Yeomanry), to be Captain, with seniority as from Feb. 8th, 1905 (dated Oct. 1st, 1908). Harry Bird Sproat to be Lieutenant (dated Jan. 27th, 1909). Surgeon-Captain John Griffiths, from the Brecknockshire Battalion, The South Wales Borderers, to be Captain (dated March 1st, 1909).

Unattached List for the Territorial Force.—The undermentioned officer, from the 1st Gloucestershire Royal Engineers (Volunteers), is appointed, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major William Cox.

VOLUNTEER CORPS.

Royal Engineers (Volunteers): The Tay Division Submarine Miners: The resignations of Surgeon-Major George Owen Carr Mackness, Quartermaster and Honorary Captain John Henry Luis, and Acting Chaplain the Reverend Harcourt Morton Davidson bear date March 31st, 1908, and not as stated in the *London Gazette* of Nov. 1st, 1907.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers of the Territorial Force who have been duly recommended for the same under the terms of the Royal Warrant (dated August 17th, 1908):—

Northern Command.

Infantry: 5th Battalion, The Sherwood Foresters (Nottinghamshire and Derbyshire Regiment): Surgeon-Major Edmund Vaudrey.

Royal Army Medical Corps: Major Andrew Paige Arnold.

Scottish Command.

Yeomanry: Ayrshire (Earl of Carrick's Own): Surgeon-Lieutenant-Colonel William John Naismith, D.S.O.

Royal Army Medical Corps: Lieutenant-Colonel Thomas Finlayson Dewar.

Southern Command.

Yeomanry: Gloucestershire (Royal Gloucestershire Hussars): Surgeon-Major Herbert Bramwell. Warwickshire: Surgeon-Major Roger Bullock.

Royal Army Medical Corps: Captain Cecil Aloysius Corke.

Western Command.

Yeomanry: Shropshire: Surgeon-Lieutenant-Colonel John Daniel Lloyd.

Infantry: 4th Battalion, The Welsh Regiment: Surgeon-Major Evan Evans.

Royal Army Medical Corps: Major Ernest Wykeham Barnes, Major John William Ellis, and Major Alfred Rees.

TERRITORIAL MEDICAL UNITS.

The following units have been reported as having attested at least 30 per cent. of the establishment authorised, and have received the recognition of the Army Council:—Field Ambulance, 3rd Northern General Hospital, 3rd Southern General Hospital, 3rd Western General Hospital, 1st Northern General Hospital, and the 3rd London General Hospital.

TERRITORIAL FORCE MEDICAL TRAINING ORDERS.

While complimenting medical officers on the arrangements made for the Territorial troops encamped last year, the Army Council has intimated that for the future great attention must be directed to sanitary instruction and water duties. Before going to camp progressive training in all duties is to be very thorough, including mounted work and the study of ground and of danger zones, the collection of wounded, and tactical formations. General hospitals are not to attend camp this year.

The captains' course at the Royal Army Medical College has recently been extended from six to nine months.

Correspondence.

"Audi alteram partem."

MOSQUITOES AND MALARIA: A CAMPAIGN THAT FAILED.

To the Editor of THE LANCET.

SIR,—Neither the cause of sanitation nor that of truth is likely to be advanced by the article of this name published in the current issue of THE LANCET by "A Special Correspondent." I have only just seen the article, but fear that I must write at once, in the interests of both, to contradict almost every statement made in it.

The article is merely a *réchauffé* of a paper by Major S. P. James, I.M.S., read at the Bombay Medical Congress

last February, but the writer of it omits to mention that in the discussion which followed Surgeon-General H. Hamilton, C.B., promptly denied, from personal knowledge, the accuracy of Major James's main contentions. Since the Congress Lieutenant-Colonel H. D. Rowan, R.A.M.C., who was principal medical officer for some years at Mian Mir, and Colonel H. J. Waller Barrow, who now holds that office, have written to the Allahabad *Pioneer* and the Lahore *Civil and Military Gazette* to the same effect. I regret that I have no copy of Surgeon-General Hamilton's remarks, but I enclose the letters of Lieutenant-Colonel Rowan and Colonel Waller Barrow, and will be very glad if you, Sir, can find space to lay before your readers the sense of what they say. I may add that Colonel J. Shearer, C.B., I.M.S., principal medical officer Dajirat and Bannu Brigades, inspected Mian Mir after the Congress, and that he and Colonel R. H. Forman, R.A.M.C., principal medical officer Bombay, have furnished me with many facts which, together with those of the officers previously referred to, show that Major James's conclusions (as might be surmised by any careful critic of his paper) are completely groundless. The salient points are that the cantonment was never cleared to anything approaching the extent he pretends; that, in fact, shortly before his arrival it had been flooded for weeks by an exceptionally heavy rainfall; that an epidemic of malaria was raging all over the surrounding country; that some of the children examined by him had come to the station only a few months previously; that there is no guarantee that many of the other persons examined by him had not been infected elsewhere (the population being a military and a changing one); that he omits to mention these vital points; and that the statistics furnished by him are quite unreliable.

The writer of your article is scarcely accurate when he describes Major S. P. James and Captain S. R. Christophers as being at the time when they commenced their fiasco at Mian Mir in 1901 "two experts in the subject of malaria prevention." They were then young men who had not long been studying malaria, and I have never heard of any previous practical anti-malaria work done by them—a very different thing. Their first reports were exhaustively criticised by Colonel G. M. Giles, Captain E. P. Sewell, and myself (see *British Medical Journal*, Sept. 17th, 1904), and to these criticisms they did not reply. The more thorough work commenced by General Kitchener in 1904–05 was advised, not by them, but by Surgeon-General Hamilton and Colonel Scott Reid, I.M.S., and Major James now attempts to justify his previous failure by showing that these subsequent measures were as fruitless as his own.

To support this attitude better he states at the end of his paper that success in such operations elsewhere "has been reported on evidence that will not bear criticism and is often ridiculous." Pressed at the Congress to say which campaign he referred to he mentioned Ismailia. Accordingly I begged Sir George Clarke, F.R.S., G.C.M.G., Governor of Bombay and President of the Congress, to ask Prince d'Arenberg, President of the Suez Canal Company, for a full official statement of the results there; and your readers should know that Prince d'Arenberg informs me not only that he will give such particulars (which I hope may satisfy even Indian sceptics) but that he will be glad to accept a commission of inquiry at Ismailia at the most unhealthy time of the year to verify those results.

It is surprising that the Sanitary Commissioner with the Government of India should not already have taken the trouble to make such an inquiry. Instead of that the Mian Mir affair has been allowed to damp anti-malaria work in India for five years. I have therefore suggested that the Government of India should make an impartial inquiry into the latter campaign also. It is time that the authorities obtain clear ideas on these subjects.

I must point out in conclusion that Major James's paper tends to throw as much discredit on quinine prophylaxis as on mosquito reduction. I am, Sir, yours faithfully,

University of Liverpool, April 4th, 1909. RONALD ROSS.

*** We have received from Professor Ronald Ross extracts from the Allahabad *Pioneer* dated March 12th and March 13th, containing letters from Colonel Waller Barrow and Lieutenant-Colonel H. D. Rowan respectively. We do not think we can attempt to summarise these communications—presumably their authors have made them as brief as they know how; but Professor Ross is right in saying that both officers regret Major James's attitude and dispute his conclusions.—ED. L.

McBURNEY'S METHOD OF CONTROLLING HÆMORRHAGE DURING DISARTICULATION AT THE HIP-JOINT.

To the Editor of THE LANCET.

SIR,—I can cordially endorse all that has been said in your issue of THE LANCET of April 3rd regarding the control of hæmorrhage during disarticulation at the hip-joint by intraperitoneal compression of the common iliac artery. Some years ago it struck me that the method suggested by McBurney was a most excellent one, and in a case of sarcoma of the femur I employed it with complete success. In the *Scottish Medical and Surgical Journal* for 1902 I gave a brief outline of this case and drew the attention of the profession to the value of the procedure. I have employed it since and feel sure from my experience of it that intraperitoneal compression of the common iliac artery in disarticulation at the hip has only to be known to be widely employed. In my cases no preliminary ligature of the femoral artery and vein was performed. This is a step which does not seem to me to be necessary. I am, Sir, yours faithfully,

JOHN MARNOCH, M.A., M.B., C.M. Aberd.

Aberdeen, April 3rd, 1909.

SPONTANEOUS CURE OF THORACIC ANEURYSM.

To the Editor of THE LANCET.

SIR,—Sir Thomas Oliver describes a case of spontaneous cure of thoracic aneurysm in THE LANCET of April 3rd, p. 971, and refers to its rarity. It may be interesting to him and others to hear of another case. I saw one when I was resident medical officer to the Royal United Hospital, Bath, in 1880. A woman was admitted with inspiratory dyspnœa unassociated with any alteration of the voice, and paralysis of the arytænoideus posticus was diagnosed. There was no history of trouble in the chest and no physical signs pointing to aneurysm or intra-thoracic growth were present. Her death occurred a few days after admission, and at the post-mortem examination we were much surprised to find a perfectly cured aneurysm of the transverse portion of the arch of the aorta; the specimen was placed in the hospital museum, that splendid creation of Mr. Gore, and is probably there now. The case was never reported.

These cases are not only interesting as curiosities but have a great value as showing the possibility of cure of aneurysm of the arch of the aorta. When such cases come under our care we are apt to feel hopeless and almost helpless, but a cure is possible, and it is suggestive that in the case above mentioned the patient had not been laid up in bed—in fact, had not desisted from her usual work. In Sir Thomas Oliver's case the man had only rested for a few weeks at a time, and the other patient quoted, who lived for as long as 12 years, undertook really violent exercise, all of which rather suggests that our present method of treatment by complete rest in bed may possibly be wrong. Has anyone ever seen a cure from such treatment?

I am, Sir, yours faithfully,

REGINALD PRATT, M.D. Lond., M.R.C.P. Lond.

Leicester, April 5th, 1909.

THE CLINICAL VALUE OF HÆMOMANOMETER OBSERVATIONS.

To the Editor of THE LANCET.

SIR,—Dr. William Russell has not yet grasped the fact that the venous blood pressure cannot exceed the arterial, and does not know that the venous pressures which he quotes from Professor Starling are measured in millimetres of salt solution, while the arterial pressures are measured in millimetres of mercury and must be multiplied by 13 to compare with the venous pressures. It is useless for me to continue a discussion with him.

Dr. Oliver Williamson's records are an earnest attempt at

furthering exact knowledge. I cannot accept his readings of leg and arm pressures unless made simultaneously, because it is just these cases of high pressure where there may come in effects of pain and discomfort from the armlets and effects of blocking part of the circulation. At present the question stands as one of disagreement between observers and can only be settled by extended inquiry. I shall be glad to measure with Dr. Williamson some of his cases and be convinced by him if he can convince me. I have worked too long at research to be carried away by preconceptions, and care for nought but the arrival at the truth on this matter. The fact that in the dog the systolic pressure wave is found by the Hürthle spring manometer to be higher in the femoral than in the carotid must not be lost sight of. The explanation of this which has been given is that the crest of a reflected wave is piled on top of the primary wave in the femoral. It is possible that this may occur in man, and perhaps particularly in high-pressure cases, supposing, of course, that it is not due to some undetected instrumental error. I consider, therefore, that the comparison of the column of blood (separating the two points of measurement) with the difference of the measurements a surer test than the equality of leg and arm measurements taken in the horizontal posture. I am, Sir, yours faithfully,

Loughton, Essex, April 5th, 1909. LEONARD HILL.

THE PROXIMATE FACTOR OF DELIRIUM TREMENS.

To the Editor of THE LANCET.

SIR,—In your accurate abstract of the third annual report of the Norwood Sanatorium (March 27th, p. 956), you refer to the fact that less than ¼ per cent. of the 63,000 persons sent to prison for drunkenness developed delirium tremens, although in all sudden and complete withdrawal of alcohol was practised (Medical Section of Prison Statistics for 1906). You advance these statistics as an argument against the view that delirium tremens depends proximately upon a sudden fall in the amount of alcohol circulating within the system. I would submit, however, that if looked at just below the surface the figures quoted constitute evidence favourable rather than hostile to the above view.

There is a general agreement that delirium tremens is a complication which mainly, if not solely, affects the *chronic alcoholic* as distinguished from the dipsomaniac and the numerous varieties of impulsive drunkards; it is especially liable to arise in those who habitually absorb large quantities of alcohol without becoming intoxicated—at any rate, frankly intoxicated. In other words, the liability to delirium tremens is *directly* as the tolerance of alcohol which has been acquired. On the other hand, it will hardly be disputed that the liability to fall into the hands of the police for alcoholism is *inversely* as the acquired tolerance of alcohol. These propositions being conceded, a low delirium tremens rate in police cases is to be anticipated, nor does ¼ per cent. seem unduly low.

It is admitted that in the great majority of cases of alcoholism, even chronic alcoholism, alcohol may be withdrawn suddenly and completely without any serious complication arising. That, however, is beside the mark. But what is to the point is the fact that when delirium tremens does arise it is always—without any exception in my experience—in circumstances which involve a large and sudden fall in the amount of alcohol in the system. The circumstances are, of course, various. The withdrawal, or comparative withdrawal, may depend upon medical treatment, as in most of the cases which occurred at the Norwood Sanatorium; or it may even be the result of a sudden effort of will on the part of the inebriate himself. I know of several examples. It may, of course, depend upon inaccessibility, as when a chronic alcoholic meets with an accident or contracts an acute illness necessitating admission to hospital. But in those cases of which it is said that the patient drank himself into delirium tremens—cases in which the drinking of alcohol continued with little interruption up to the point at which the actual delirium commenced—it will usually be found on close inquiry that the determining factor was gastric catarrh with inability to retain, and consequently to absorb, even small quantities of alcohol.

I am, Sir, yours faithfully,

FRANCIS HARE,

March 31st, 1909. Medical Superintendent, Norwood Sanatorium.

CONVENTION OF THE AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND DRUG NARCOTICS,

HELD AT WASHINGTON, D.C., U.S.A., ON MARCH 17TH, 18TH, AND 19TH.

(FROM A SPECIAL CORRESPONDENT.)

(Concluded from p. 1012.)

The Alcohol Question in the United States.

Dr. GORDON (Philadelphia), who discussed legal responsibility in acute and chronic alcoholism, held that in chronic alcoholism responsibility is limited because of the diminution in the power of discrimination in the subject. Dipsomaniacs were entirely irresponsible. In this respect the legal test of "right and wrong" was inadequate and must give place to the medical view of anti-social acts, which asks whether the patient can really appreciate their consequences.

Dr. WILLIAMS (Washington) pointed out the evil consequences of removing from a psychopath or defective, whose very nature made him less capable of clear judgment of social relationships, the deterrent of legal punishment.

Dr. MASON agreed with Dr. Williams, and pointed out that whereas crimes of violence were increasing, more particularly in France and America, the inevitability of punishment following crime acted in Great Britain as the most powerful counter-suggestion to the sensationalism of the modern press.

Dr. ROSENWASSER declared that periodic dipsomaniacs were in reality epileptic, and were therefore without responsibility. He thought that every accused person should be examined by a medical commission before appearing in court. He believed that 90 per cent. of the defectives who composed the majority of criminals were better off in jail than out.

Dr. MASON discussed very fully the urgent need of legislation for inebriates, and outlined an ideal scheme for dealing with inebriates and mental and moral degenerates as embodied in Bills at present before the Legislature and municipal councils of New York and Brooklyn.

Dr. MACDONALD (Washington) urged the importance of accurate anthropometric data.

Dr. WILLIAMS analysed the psychological bases of inebriety, their etiological and sociological factors, and the remedies for these. He classified inebriates into: 1. Suggestible individuals who were not truly inebriates until the occurrence of tissue degeneration from prolonged drinking; until this happened they were easily curable. 2. Individuals whose suggestibility had arisen by the perpetuation of the impulsiveness of the child from lack of ethical training. 3. The psychasthenically constituted, in whom the feeling of longing had turned towards satisfaction by a narcotic. By difference of environment it might have turned towards mysticism or fetichism. Whatever happened was a habit-reflex, which should have been prevented in youth. The remedy was the teaching of mothers to form healthy emotional habits in their children.

Dr. QUACKENBOSS (New York) described the psychical therapeutics of inebriety as employed by him. The cure was performed by suggestion.

Dr. HUGHES (St. Louis) spoke of the neuropathic entailments following the use of alcohol, and said that as softness was a property of living cells, to maintain this the due content of water was required, of which alcohol robbed them, causing induration.

In discussing the paper, Dr. WILLIAMS pointed out that the French psychiatrists did not believe that the alcoholic psychoses were due to the direct effect of alcohol on the brain.

Dr. BERKLEY described lesions in the central nervous system which he had produced experimentally by giving alcohol to rabbits. He gave it in small doses until tolerance appeared, and then increased it until death occurred.

Dr. MASON extolled the value of such research work, and said that he proposed to provide a fund for an annual oration to the public in several large cities in order to commemorate the pioneer work of his father in placing before the public scientific facts about the deleterious action of alcohol. A leading authority would be selected each year to present to the laity the most recent work as it was completed.

Dr. WINFIELD HALL (Chicago) described his experiments upon the action of alcohol, tea, and other common poisons on tissue capacity. Against the argument that because alcohol was found by analysis in human muscle it was therefore a legitimate food, Dr. Hall quoted the experiments of Magnan, who showed that by placing muscle in 1 per cent. sodium fluoride it broke down by stages into (1) acetone, (2) acetic acid, carbon dioxide and water, (3) alcohol, carbon dioxide and water, and (4) entirely into carbon dioxide and water. The alcohol was therefore a mid-product of katabolism and it was as false to infer from this that it was a food proper to ingest as to infer the same thing of uric acid or acetone itself; all were waste products.

Dr. SPRATLING (Baltimore), in speaking of alcohol as a cause of epilepsy, from his ten years' experience in the great colony at Sonyea, New York, declared that he had studied about 1500 epileptics and could therefore speak from his own experience. He was convinced that chronic alcoholism in the parent was a fertile cause of epilepsy in the child.

Dr. CROTHERS, in discussing the paper, emphasised the need of more accurate statistics, pointing out that consideration for the family generally prevented the physician from accurately registering the alcoholic etiology.

Dr. WEBSTER (Chicago), President of the Illinois Board of Health, believed that the relation of alcohol to public health made it the most vital and baffling obstacle to the progress of man. It was as much a medical problem as that of tuberculosis, and should be let alone by fanatics and studied by biologists as a part of the reaction of man to environment. The sooner the researches of physiologists were applied in practice the more chance would there be of diminishing the enormous expenditure caused by alcohol; e.g., 50 per cent. of the cost of arrests and maintenance by the police arose out of drunkenness. If to this were added the 20 per cent. of the insane due to alcohol it would be found that the cost to municipalities was 12 million dollars per annum to dispose of preventable nuisances due to alcohol. This did not take into account loss of time and losses by premature death. Estimating the value of a life at 8000 dollars, Fisher had estimated at one billion four million dollars the loss to the United States per annum by deaths from alcohol, making a total estimated loss of two billions one hundred and forty-two million dollars. This takes no account of the fallaciousness of statistics due to concealment by family and physician, who would generally certify an alcoholic gastritis or nephritis as merely "chronic." In Switzerland and Sweden, and to a less degree in France, statistics were more reliable on account of the guarantee of medical secrecy. Dr. Webster agreed with the pronunciamento of the International Congress of 1905 upon tuberculosis, held at Paris, that to "effectively fight the great white plague it is essential to counteract the influence on the public health of taking alcohol." The medical profession should lead the way in this and avail themselves of all the help they could from such laymen as economists, sociologists, and the clergy. The need for this was apparent when statistics were studied. For whereas in 1900 the consumption of alcohol was 17½ gallons per head it had now reached the amount of 23 gallons per head per annum.

At the conclusion of the papers it was resolved to continue the semi-annual meeting and to convene it again at Washington next year. The annual meeting is always held in conjunction with that of the American Medical Association; but the time for communications and discussions is much curtailed by the section meetings. This meeting, which was supplemented by several addresses by members in the churches of Washington, proved most successful.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The University of Bristol.

THE Bristol University Bill has been read a second time before the House of Lords. On March 25th a meeting was held at University College to discuss the advisability of forming an Association of the Alumni of the University of Bristol. The matter has already been considered informally by members of the College staff, and on the above date their suggestions were submitted to the meeting. After a brief discussion, in which the advantages derived from the existence of such associations at the Universities of Toronto and Liverpool were dwelt upon, the meeting proceeded to elect a committee to draw up rules and regulations, which will later be submitted to as representative a meeting of alumni as possible.—The claims of classical education were urged in an interesting lecture on "The Power of Antiquity," delivered at University College on March 22nd, by Professor R. S. Conway. He showed that it is a mistake to suppose that there is no room for "idealistic" or classical as opposed to "utilitarian" or technical study in the modern university, and pleaded for the establishment of a strong school of classics in the coming University of Bristol.

The Barnstaple Rural District Council and the Local Government Board.

The Barnstaple rural district council has had friction with the Local Government Board for some time past over the question of the sanitary inspection of the district, and at its meeting held on March 19th a letter was read from the Local Government Board informing the council that if it still declined to appoint two inspectors of nuisances instead of one no part of the salary of the present officer would be repaid them from the county fund. The members of the district council, after some discussion, decided to inform the Board that they did not consider two inspectors necessary. It is to be hoped that the council will reconsider its decision, for it seems impossible for one sanitary inspector to do the work of such a large area as that covered by the Barnstaple rural district council.

The Gloucestershire Infirmary and Eye Institution.

The annual meeting of the governors of the Gloucestershire Infirmary and Eye Institution was held on March 25th. The chairman (Colonel Curtis Hayward), in submitting the annual report and accounts for 1908, said that there had been increases in the number of in- and out-patients, and the cost per bed was £80, as compared with £57 7*s.* 10*d.* 20 years ago. Against an increase of £527 in the expenditure was a decline of £493 in income, and there was a deficit on the year of £1153. The committee does not think it should encroach on capital to defray current expenditure, and it states that it must either have increased financial support or reduce the work of the institution.

The Royal Hospital for Sick Children and Women, Bristol.

The annual meeting of the subscribers of this institution was held on March 29th under the presidency of the Lord Mayor. The medical report stated that during 1908 the in-patients numbered 818 (751 children and 67 women), compared with 785 (727 children and 58 women) in 1907. 3610 children and 1541 women were treated in the out-patient department, as against 3276 children and 1456 women in the previous year. The financial statement was satisfactory, and showed that as a result of a special appeal for increased subscriptions £5386 had been raised. The committee has consequently been able to discharge the adverse balance of £3998 remaining at the close of 1908, and also to defray the cost and equipment of the cottage required for the accommodation of special scarlet fever cases, and the sum of £639 has been carried forward as a small nucleus of a fund for new buildings for the out-patient department.

Hospital Sunday Fund at Bristol.

Up to April 2nd the collections in aid of the Lord Mayor of Bristol's Hospital Sunday Fund were £1853. Last year £1859 were received, and as there are still some collections to come in it is evident that the total of that year will be exceeded.

The Health of Torquay.

Dr. T. Dunlop, the medical officer of health of Torquay, in his annual report for 1908, which has just been issued, states that during the year the birth-rate was 15·4 per 1000. The death-rate was 17 per 1000, but deducting the deaths of visitors the rate was 15·7. Dr. Dunlop says that after many years of almost complete immunity from diphtheria, the borough suffered severely from it, there being 99 cases with 12 deaths. There were 114 cases of scarlet fever, but no case ended fatally. 16 cases of enteric fever were notified, with four deaths; in two instances there was distinct evidence of eating sewage-polluted shell-fish. 74 deaths were due to phthisis, of which 17 were in visitors. 69 deaths occurred from cancer. The zymotic death-rate was 1·2 per 1000, against 0·73 in 1907.

April 5th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Hospital Saturday Fund.

THE executive committee of the Birmingham Hospital Saturday Fund is to be congratulated upon the report it was able to present at the annual meeting. In spite of bad times the places left vacant by the falling out of firms which had previously contributed were more than filled by new contributors, and the total collection reached the record sum of £20,516 13*s.* 1*d.*, or over £520 more than in the previous year. This is an extremely satisfactory result; it is equally satisfactory to note that the expenses of the Fund only amounted to 4·8 per cent., therefore they compare very favourably with those of other large towns. This has always been the case, and Sir Halliwell Rogers, in seconding the motion that the report should be adopted, stated that since the inception of the Fund in 1873 the total amount collected was £400,000 and the expenses for the whole period under £20,000, that is, under 5 per cent. The Fund not only contributes considerable sums to the hospitals of the city but also supports three convalescent homes, one for men, one for women, and one for children, at which during the past year 3072 patients were received. It has been suggested that the Fund should give help to the new provident dispensary scheme.

The Birmingham Lying-in Charity.

The governors of the Birmingham Lying-in Charity are making an urgent appeal for increased support. The charity is doing excellent work both in treating necessitous and deserving cases and in training midwives. The staff of the Maternity Hospital has been increased, the work done has been extended, and the training of pupils has been so successful that 32 out of a total of 34 passed the examination of the Central Midwives Board. The subscription list has been considerably increased, but a deficit of £500 18*s.* 10*d.* on the last year's work and an overdrawn bank account of £1502 14*s.* 4*d.* show that it must be still further augmented if the work of the charity is to be continued on a proper basis. Even if other appeals do not for a time receive adequate support this should not be allowed to fail, for it is a cause to which no humane person can raise the least objection and a charity which helps urgent necessity.

The Amalgamation of Societies for the Relief of Cripples.

The existence of two societies for the relief of cripples has apparently been detrimental to both, and it has therefore been wisely decided that the Crippled Children's Union and the Adult Cripples' Guild shall be amalgamated. The Crippled Children's Union possesses an income of about £1200 a year and a house and grounds, recently given to it by Mr. George Cadbury, upon which it has spent some £3000. At present the house is unfurnished, but the union of the two societies will enable the surplus money of the Adult Cripples' Guild to be utilised for the provision of furniture. In a short time the new property of the combined societies will be ready for occupation.

Medical Inspection in Warwickshire.

In Dr. A. Bostock Hill's report of the results of medical inspection in Warwickshire during the past year a few interesting points stand out. There are 257 schools in the county, but of these only 96 were visited by the assistant medical officers, who report that in 75 of the 96 the arrangements are good, while there are only a few schools in which the general arrangements must be specified as bad or very bad. On the other hand, it is stated that the great majority of schools of the county are not cleaned so frequently as they ought to be. The number of children examined was 3175, and of these over 40 per cent. were suffering from defects necessitating advice. In spite of the fact that, so far as teeth were concerned, instructions were given not to report children who had less than four teeth affected, 17·6 per cent. of the children were reported under the head of defective teeth, that is, 17·6 per cent. had four or more teeth defective, and it is probable, therefore, that the total of defective teeth would not be much less than 83 per cent., which is the average for 10,000 children spread over a large area. So far as Warwickshire is concerned, however, there is a considerable difference between the northern and southern areas, defects being more common in the south than the north. If this disproportion is still found to exist when the examination is completed, a solution of its causation should prove interesting. The other points of the report do not differ in any essential respect from those of reports from other districts.

The Walsall and District Hospital.

At the annual meeting of the general committee of the Walsall and District Hospital the chairman stated that the extensive alterations and additions which had been in progress during the last two years were now completed, placing the institution in a good condition and bringing it fairly well up to date. He expressed the hope that during the present year it would be possible to keep the expenditure within the income, but he drew attention to the existing debt and pointed out that it would be necessary to develop their resources so that the two wards which had been closed might be reopened as soon as possible.

April 5th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Minimising Abuses.

THE eightieth annual meeting of the supporters of the Manchester Children's Hospital was held on March 25th. The report spoke of the greatly increasing pressure on the time of the staff and the accommodation of the building, matters "claiming serious attention." It is well that this question of obtaining hospital medical treatment by all sorts of people, many well-to-do, others poor, and some wretchedly poor, should be taken up. Perhaps hospital abuse is not altogether the fault of the abusers, for when we see one institution competing against others in almost every large town in the country, each striving to show the largest number of patients, it is no wonder that the undeserving are as ready as those more properly speaking the fit recipients of charity, to take all they can get for nothing. It is, therefore, quite time that steps should be taken to lessen this fraud on medical charities and on the medical profession. We learn from the report that "with a view to minimise the tendency to resort to the institution on the part of persons who formerly did not do so, arrangements have been made for visiting the homes of persons living in Manchester and Salford, and inquiring into their means, with a view to eliminating those who ought not to be using the hospital." Note how delicately the point is put. The hospital is also going to charge cost price for cod-liver-oil emulsion to those who can afford to pay, but not to those who are too poor to do so. The medical report testifies to a record year's work both at the hospital and dispensary. The financial condition is anxious.

The Rigorous Temperatures of Factories.

A case of some interest and importance was heard at the Rochdale borough police court on March 24th. On Jan. 27th and 28th three waste manufacturers were summoned for "failing to take adequate measures for maintaining a reasonable temperature" in particular workrooms. Mr. Verney, factory inspector, visited the factories worked by the three defendants and found the temperature 36°, 33°, and 28½° F. There were no artificial means of heating which some firms had. The operatives at this kind of work were said to be poor and unorganised and so could not insist on better conditions. Dr. T. M. Legge of the Home Office said that the operatives ought not to be asked to work in a lower temperature than 50°. The solicitors for the three firms said it was unreasonable that artificial heat should be required, that it would be a great expense, in one case about £300, that the material would be more inflammable, and therefore more dangerous. The general plea was that no complaints were made, and that the insurance companies debarred them from using artificial heat. If there is so much danger of fire it is possibly from the great amount of dust in the air of the rooms, and this of itself is, perhaps, as bad for the health and comfort of the workpeople as the cold. One witness, when asked if he thought 36° a reasonable temperature, said, "Yes, I think they can work easily enough in that;" but to the question, "Would you like to work at that temperature?" he replied,

"No, I should not," which may well be believed. The chairman said that the bench considered the temperature too low, but as these were the first cases heard in the district the small fine of 2*s.* 6*d.* and costs was inflicted in each case. Perhaps by next winter things may be better.

April 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The New Dykebar Asylum.

THE county of Renfrew's new asylum at Dykebar is now approaching completion, and it is expected that in a week or so part of it will be ready for the reception of pauper patients. Hitherto county patients have been boarded out at other asylums, but, the requisite accommodation at these latter places failing, the Renfrew district lunacy board were ultimately forced to provide accommodation for themselves. A purchase was made of the Dykebar estate, comprising 540 acres, situated between Paisley and Barrhead, and a suitable portion marked off for the erection of asylum buildings. The result has been the erection of one of the most complete and up-to-date establishments of its kind in the country. There are altogether ten main blocks of buildings, the chief being the central or administrative block with its two hospital wings. The most striking feature of the new asylum is that it is erected on the villa system, there being altogether four large villas, which allows of patients being segregated according to the different kinds of cases. The only other asylums in Scotland worked on this principle are Kingseat Asylum, Aberdeen, and Bangour Village Asylum, Edinburgh. The main buildings, all of red sandstone, are: administrative block of two storeys and attics, with one storey hospital wings on each side (42 beds in each wing); reception block (16 beds); laundry villa, two storeys and attics (50 beds); and three well-appointed large villas, two storeys and attics each (42 beds in each). The kitchen and laundry adjoin the administrative block and to the rear are the workshops. The accommodation will be for about 300 patients. The heating apparatus is on the Reck system and the total cost of the building is estimated at about £100,000.

Glasgow Hospital Sunday Fund.

The annual report of the Hospital Sunday Fund for 1908 has just been issued. The total income from church collections amounted to £4980, showing a decrease of £47 on the previous year. The sum set aside for the infirmaries was £4750, and this was distributed in proportion to the number of fully occupied beds in each infirmary. According to this plan the allocation was as follows: Royal Infirmary (591·3 beds), £2036; Western Infirmary (541·94 beds), £1867; and Victoria Infirmary (246 beds), £847. After meeting the working expenses this leaves a balance of £6 to carry forward to next year.

Opposition to the Acquisition of the Sidlaw Sanatorium by the Town Council of Dundee.

The acquisition of the Sidlaw Sanatorium by the town council of Dundee was opposed at a meeting of the executive committee of the Citizens Union held on March 26th. It was decided to ask the ward committees to convene meetings as urgently as possible and pass resolutions against the scheme on the ground of extravagance. It was also agreed to memorialise Lord Pentland, the Secretary for Scotland, and the Local Government Board asking that final approval should not be given to carrying through the agreement come to between the corporation and the sanatorium directors until the ratepayers of the city had had ample opportunity of considering the scheme in all its details. It is understood that the memorialists object to the mode of procedure followed by the town council and the directorate of the sanatorium in coming to an agreement, certain legal defects being alleged. The Dundee Landlords and Housefactors' Association is also opposed to the provisional order, on the ground that to change the incidence of taxation would be a breach of the agreement come to when the last provisional order was promoted, and under which it was arranged that there would be no alteration in this respect until 1914. A further meeting anent the matter was held at Auchterhouse on March 23rd. Complaint was made that Auchterhouse had in no way been consulted, as far as was known, while the matter concerned the village in several ways, drainage and water supply being mentioned. A letter was also read from Mr. D. Crichton, Dundee, who resided in Auchterhouse for several years, expressing indignation at the action of the Dundee town council in so hurriedly settling the matter, and saying that it was only possible to believe that the course was due to a desire to aid the directors to get rid of the institution under their care. Several disadvantages of the scheme were touched upon in the letter. After further discussion a resolution was submitted declaring that the scheme was a great menace to the interests and health of the district; calling upon the town council and the Airlie trustees to take measures for restricting as far as possible the number of consumptives to be treated, for confining them within the grounds of the sanatorium, for preventing the sewage of the institution from becoming in any way a nuisance or a danger to the health of the locality, and for insuring to the village a pure water-supply. The Airlie trustees were also to be asked to make no arrangements which would interfere with the present privileges of the inhabitants of Auchterhouse in regard to Auchterhouse Hill. This resolution was seconded and ordered to be communicated to the Dundee town council, county council, and the Airlie trustees.

April 5th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Mortality in Irish Towns.

THE registration figures of last week show that the number of births (238) exceeded that of the deaths by 22. The mortality among the males, however, exceeded the male births by one, while 23 more females were born than the number of deaths of members of that sex. The deaths represented a rate of 27 per 1000. This figure was exceeded in Armagh and in Cork, in each of which cities it reached 27·5 per 1000, and in Kilkenny, where it attained the rather startling figure of 34·3. The deaths in Dublin included six from measles, four from influenza, two from whooping-cough, and one each from diphtheria, enteric fever, and enteritis. The deaths from tuberculous diseases fell from 46 in the previous week to 29, 22 of which were from decline. Of the deaths of children, 53 had occurred under four years of age, including 33 infants under one year and nine under one month. Among those of riper age 27 of the deaths were of persons over 60 years, 35 of persons aged 70, while there were six octogenarians, and one (a woman) who had passed 95. The deaths in Belfast numbered 198, which included five from whooping-cough, four from diarrhœal disease, and one from diphtheria. In Cork 40 deaths occurred, including two from enteric fever and one from whooping-cough. The rate exceeded 20 per 1000 in 12 of the 22 selected districts, and was below 10 in two only of these. The lowest was in Drogheda, the record there being 8·2.

Royal Victoria Hospital, Belfast.

At the annual meeting of the governors and supporters held on March 31st it was reported that 3336 new intern and 30,041 new extern cases were treated during 1908. The total income was £15,145 11*s.* 10*d.*, while the expenditure was £15,867 17*s.* 1*d.* It was mentioned that the Royal Victoria Hospital came out 48·48 per cent. cheaper than the average cost per bed in 12 principal hospitals in London, while compared with the average of 19 provincial Scottish and English hospitals it was 17·47 cheaper. In the Royal Victoria Hospital the cost per bed was £51, so that subscribers can see there is every effort at practising economy in the working of the hospital.

Health of Belfast.

At the usual monthly meeting of the corporation of Belfast on April 1st it was reported that between Feb. 14th and March 20th the death-rate was 20·3, that from zymotic disease 0·6, while from chest ailments it was 8·2 per 1000. There is a marked reduction in all notifiable infectious diseases, especially in typhoid fever. Compared with the same period of 1908 the death-rate is lower.

April 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Syphilis by Tartar Emetic.

AT a meeting of the Hospitals Medical Society held on March 19th M. Queyrat and M. Demanche communicated a paper, in which they said that, following up the ideas of those who had treated sleeping sickness and various forms of spirillosis with tartar emetic, they had been trying to see if this drug had any action in syphilis. The method of administration was by intravenous injection of a 1 in 1000 solution made isotonic by the addition of 7·50 grammes per 1000 of sodium chloride. The solution was injected very slowly by means of a bulb pipette, which had been sterilised in an autoclave, and an indiarubber bulb. Thanks to these precautions the two observers were enabled to give a daily dose for 11 or 12 days of from 0·10 to 0·12 of a gramme of tartar emetic without producing any inconvenient symptoms. In the first patient, who, besides having a marked secondary rash, was suffering from commencing pulmonary tuberculosis, the treatment had to be interrupted on account of its aggravating the pulmonary symptoms. In the second patient, suffering from both macular and papular syphilides, the papules rapidly disappeared, giving place to pigmented patches. In a third patient, who was covered with syphilitic psoriasis, the psoriatic patches became transformed into large pigmented plaques. Some days after the cessation of the antimony treatment the patient was attacked by acute meningitis. Lumbar puncture showed abundant leucocytosis with polynucleosis. A course of mercury rapidly cleared up the meningitis, thereby confirming its syphilitic nature. Finally, the two observers say that the treatment by tartar emetic is, as a rule, well borne by syphilitics, that it greatly improves certain cutaneous manifestations of the disease, but that it apparently has no specific action on the progress of the disease nor any influence in retarding the appearance of complications.

The Abuse of Disinfection in Paris.

At the same meeting of the Hospitals Medical Society M. Comby raised a protest against the compulsory notification of measles and the resulting disinfection. Measles, he said, although an infectious disease, is the very last which calls for disinfection. Even though it is contagious before the rash appears, the infection lasts but a short time, and the organism cannot exist outside the body and therefore does not live in furniture, flooring, or walls. Disinfection is therefore useless. Grancher had succeeded in preventing the Academy of Medicine from including measles among the diseases to which compulsory notification should apply, but in 1903 the Academy had gone back on this decision. M. Lemoine, professor at Val de Grâce, was not only convinced of the uselessness of disinfection of dwellings in measles, but he had great doubts as to its utility in other infectious disorders. M. Courmont, the chief of the disinfection office in the department of the Rhone, said that measles should be eliminated from the list for disinfection. In Paris disinfection as carried out by the municipality had not fulfilled expectation. M. Comby concluded by saying that the Academy should revoke its decision of 1903 by taking measles out of the list of diseases for compulsory disinfection.

Sterilisation of the Skin with Tincture of Iodine.

At a meeting of the Surgical Society held on March 24th M. Walther reminded his audience of his method of sterilising the skin by means of tincture of iodine. In every case in which he had employed this method—they were mostly laparotomies—he had obtained excellent results, with primary union of the skin. He concluded his paper by giving an account of the experiments which he had made, and of the bacteriological and histological results at which he had arrived.

Cerebro-spinal Meningitis.

Last week I informed your readers that Dr. Netter had pointed out to the Academy of Medicine that Paris was threatened with an epidemic of cerebro-spinal meningitis. At a recent meeting of the Hygienic Committee Dr. Thoinot reported that since Jan. 1st there have been 51 cases in the department of the Seine. Dr. Thoinot, however, does not consider that there is a real epidemic, for the cases were widely scattered. The police authorities are taking all precautions, and the director of the Assistance Publique has issued orders that all adult cases of the disease are to be taken to the Claude Bernard Hospital and those of children to the Trousseau. The best remedy appears to be the serum introduced by Wassermann of Berlin, which, thanks to the exertions of M. Roux, has been made use of in France. Numerous recoveries have occurred under its use.

The Venoms of the Salamander and the Viper.

Madame Phisalix appears to have just made a curious discovery. She has been studying the relations which exist between the venom of the salamander and that of snakes, and on March 27th M. E. Périer gave an account of her researches before the Academy of Sciences. The venom of the salamander is a convulsant, that of the vipers, on the contrary, is a narcotic (*stupéfiante*). Madame Phisalix inoculated an animal with a dose of both poisons and to her surprise the animal remained unharmed. Salamander venom therefore, according to these researches, neutralises viper venom. The salamander, too, is immune to viper poison.

The New Morgue.

The Prefect of the Seine, after consultation with the Ministers of Justice and of Public Instruction, has just appointed a commission to draw up a complete scheme for the reorganisation of the Morgue. The commission consists of 25 members, among whom are Professor Landouzy, Dean of the Faculty of Medicine; M. Le Chatellin, Professor at the Faculty of Sciences; and M. Thoinot, medical inspector of the Morgue.

Nebulised Fluids in the Lungs.

At a meeting of the Academy of Medicine held on March 22nd M. Gauthier read for M. Cany a note on the Penetration of Nebulised Fluids into the Lungs, recording experiments which seem to show that substances in the form of spray do penetrate into the recesses of the lungs.

April 5th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The International Ophthalmological Congress.

NOWHERE are congresses, scientific and professional, domestic and international, more frequently held or more numerously attended than in Italy, where they seem to assume the place of "post-graduate courses," which, in a sense, they may be said to have anticipated. They supply, indeed, the information and the discussion which in other European countries are conveyed in medical journals—a form of professional literature in which Italy is as yet comparatively poor. Naples is to-day the seat of one of the most important and attractive of these—the Congresso Internazionale Oftalmologico, the eleventh of the series—which under the honorary presidency of the Senator Giovanni Paladino, professor of physiology and rector of the University, met this forenoon to the number of 550 in which the leading ophthalmological schools of nearly all nations were worthily represented. Addressing an audience reinforced from all the faculties of the Neapolitan seat of learning and including many of the most distinguished citizens, Professor Paladino announced a message from the King, embodying His Majesty's best wishes for the success of the "nobile riunione," followed by a congratulatory letter from the Minister of Public Instruction. From this Professor Paladino launched into a review of the progress of ophthalmological study and practice in Italy, more particularly as illustrated in Naples, beginning with Giambattista della Porta, who, after having invented the *camera oscura*, recognised (he said) "in the *globo oculare* a special *camera oscura*, thus opening up a sure pathway to the minuter study and knowledge of the physiological mechanism of vision." Having given a cordial welcome to the *congressisti* present he then declared the Congress opened in the name of the King. Next to speak was the venerable Senator Tommaso Senise, professor of pathology, who welcomed the *congressisti* on the part of the Neapolitan Medical School and expressed the hope that their

presence would stimulate the *genius loci* to continuing, if not improving upon, the past achievements of Naples in ophthalmology, achievements giving honour to the names of Castorano, Del Monte, and De Vincentis. After a few cordial words from the representative of the Neapolitan municipality, Dr. de Lapersonne, professor of ophthalmic medicine in the University of Paris, spoke in the name of the foreign delegates, dwelling felicitously on the *fratellanza* of science, particularly of medicine, and evoking rounds of applause by his eulogy of the manifold attractions of Naples and of the *antiqua mater*, Italy. Finally, Dr. Angelo Angelucci, who holds the chair of ophthalmology in the Neapolitan School, rose as "working president" of the Congress to wind up the proceedings, and after a touching reference to the Siculo-Calabrian cataclysm and to the magnificent demonstration of sympathy and practical relief it had evoked from the outlying world, he concluded by auguring well for the department of medicine which the Congress represented, a Congress exceeding in numbers and in point of *personnel* not falling below the most brilliant of its predecessors. In the afternoon the special business of the day began, among the monographs presented being two of exceptional interest by Dr. Umberto Bruni of Naples, the first on "Una Speciale Cura del Trachoma" and the second on "La Correzione dello Strabismo senza Operazione."

The International Congress on Injuries to Working-men.

This Congress, the second of a series which met for the first time at Liége, will be held in Rome, under the patronage of the Italian Government, from May 23rd to 27th next. It will have two honorary presidents, Dr. Guido Baccelli, Member of Parliament and director of the Roman medical clinique, and Professor Francesco Durante, Senator of the Kingdom and head of the surgical clinique in the same seat of learning. The honorary vice-presidents are also men of light and leading, while the "acting president" will be Professor Salvatore Ottolenghi, director of the Institute of Legal Medicine in Rome. A strong executive committee in which the schools of all the divisions of the Italian kingdom, mainland and insular, Northern, Central, and Southern, are represented, has been organised to cooperate with the two other committees, domestic and foreign, charged with the carrying out of an exceptionally interesting and comprehensive agenda paper. Those of the English-speaking world who desire to intervene at the Congress are requested to apply by letter, inclosing a postal order for 20 francs, to Professor Attilio Ascarelli, treasurer to the Congress, at 38, Via Borgognona, Rome.

The Health of the Pope.

His Holiness, I am happy to announce, is now well enough to take outdoor exercise, in spite of the weather, which continues variable, not to say inclement. On the morning of April 1st, for the first time after several months, he was able to enjoy an outing in the gardens of the Vatican. Leaving his apartments at 10.30 he crossed the Museo del Lapidario and reaching the Cortile della Pigna he walked about for half an hour. Then he entered his carriage and made a round of the beautiful demesne on which the belated spring has not yet set its mark, thereafter returning to his apartments a little before noon, not too tired to receive in private audience Cardinal Gotti and the Bishop of Macerata.

The Maladies of Prehistoric Man.

There never was a time, according to Celsus in his admirable introduction to the "De Medicina," when the healing art was not in request, and another great light of Roman literature, the poet of the "De Rerum Natura," has imagined for us the lesions of primitive man in his conflicts with wild beasts. It is, indeed, such injuries that must have first exercised the resources of medicine and made surgery the elder sister of the art—the younger being that which dealt with internal or "constitutional" disease. Of this latter, as met with in prehistoric man, the Subalpine School has recently been taking cognisance as a branch of those researches which have lately been prosecuted in Sicily and in Cyprus by the distinguished physiologist Professor Angelo Mosso. Paul Broca had already shown that tuberculosis must have been of primeval occurrence, judging from the ankylosis found in the knee-joint consequent on a so-called "white tumour," while signs of advanced caries due to a similar cause he also recognised in the lower limb. Le Baron discovered and described a jaw-bone bearing lesions consequent on cancer; but it is arthritis in every form, central and collateral, that has been most often and most clearly diagnosed. One investigator affirms that he has come across more than 30 such cases in prehistoric man. "Did there exist a rudimentary therapeutic, primitive indeed but real, for the neolithic patient?" Such is the question answered in the affirmative by one of Mosso's disciples. True, the intervention of clinical surgery, as we understand it, was possible only in far more recent times. An arrow-head, for example, imbedded in a bone was not extracted, but the so-called "cure" took the form of rest and restorative nourishment for the sufferer. "White tumours" (tuberculous in origin) were allowed to cure themselves by ankylosis (as Broca pointed out)—ankylosis resulting in rigidity of the joint and limb, only obtainable by the repose and the nutriment aforesaid. Whether or not other special cures were in practice cannot be made out with certainty, though it is significant that many of the severely wounded must have survived their lesions and that a high percentage of fractures must have been conducted to complete reparation. Skeletons, moreover, are in evidence with the traces of chronic surgical maladies, maladies of long duration, which testify to the patients having been under some system of cure, protected in the struggle with the ailment or even artificially sustained during its progress. Man, even in his primeval stage, must have had some other resources to fall back upon than the *vis medicatrix naturæ*, resources the character and enumeration of which are in course of investigation by that school from which Mosso has already taught us to expect good results, embodied in the "Atti" of the local Academy of Medicine.

Messina Rediviva.

The Senator Francesco Durante, the veteran head of Roman surgery, theoretical and clinical, has just been entertained at a banquet by his colleagues, including Dr. Guido Baccelli, professor of clinical medicine, the Senator Dr. Stanislas Cannizzaro, who holds the chair of chemistry in the same school, and many other friends and sympathisers, prominent among whom were the representative of the Knights of Malta and the distinguished jurist Signor Manfredi, President of the Upper Chamber. The spokesman of the occasion was Dr. Giuseppe Sergi, professor of anthropology, who in the name of the teaching staff of the Roman school, the students past and present, and the Sicilian compatriots of the guest of the evening, gave an eloquent appreciation of the many boons conferred on science, on professional practice, and on civic life by Francesco Durante. The toast having been enthusiastically honoured the Senator Durante replied. He had all his life, he said, been devoted to the welfare and the interests of his fellow man, primarily in the alleviation of physical suffering, and it was in keeping with his past career that he should henceforth dedicate the years that might still be in store for him to the resuscitation and prosperity of his beloved Messina, so recently visited by so terrible a calamity. Dwelling with power and pathos on the theme, he invited the company to join him in drinking to "Messina Rediviva," whose regeneration, moral no less than economic, was a task of the immediate present and would be (he doubted not) a triumph of the near future.

April 2nd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Disinfection in Vienna after Infectious Diseases.

LAST year new regulations were laid down by the health committee as regards the disinfection of household furniture and rooms in which an infectious patient had been treated, and Dr. Böhm, in a paper read before this committee, reported on the working of the new rules. All disinfections are, as a rule, carried out by order of the local magistrate and are therefore free to the public, but in special cases, when disinfection is required by a private party, a small charge is made. As regards the system in use, the disinfection of inhabited places is effected by means of a formaldehyde atmosphere, produced mostly by vaporisation or sometimes by a spray apparatus. The other usual methods

are too dear, except in paid cases, and are used only in rooms where special precautions are necessary to prevent an outbreak of fire. The other chemical used is oxycyanide of mercury. Its disinfecting power (1/10—5/10 per cent. solutions are sufficient) is powerful enough to make its employment cheap; at the same time a very great advantage is found in its absolute lack of any odour, and the material (including metal) to be disinfected is not affected. The disinfecting staff receive a 5 per cent. solution and have only to weaken the liquid as required. The public, however, is not allowed to handle the substance because of its poisonous characters. Hitherto, no bad effects from this method have been noticed and the health of the men engaged in the work has not suffered. Portable personal belongings are disinfected by means of steam in special apparatus, of which there are at present six very large plants available in Vienna, all working with high-pressure steam. Special precautions are taken to prevent any possibility of the disinfecting staff themselves carrying diseases into other places. Personal cleanliness, special clothing, and baths after work are required of them. The amount of work done during the time the new rules have been in force is not small. From the end of May until the end of December, 1908, 11,649 rooms in lodgings were disinfected, and 79,387 articles belonging to 9170 persons were treated by steam with perfectly satisfactory results.

Prohibition of the Use of Yellow Phosphorus for Matches.

The Government has laid before the House of Parliament a Bill dealing with the prevention of the use of yellow phosphorus in the manufacture of matches. Austria and Japan are the only two important match-producing countries who have not signed the Convention of Bern regulating this branch of industry, and severe recriminations were directed against the Ministry of Commerce by the Labour party for this alleged neglect of the interests of the workers. A few days ago the long-expected Bill was brought in. In this the Government proposes to refuse permission for any new match factory to use the yellow or white phosphorus, and to stop the use of this material in the existing factories after July 1st, 1912. The investigations of the committee for the study of phosphorus necrosis [1] showed the deleterious effect of this manufacture upon the health of those engaged in it, in spite of very stringent precautions against poisoning. The memorandum drawn up by this committee, and presented by the Vienna Gesellschaft der Aerzte (Medical Society) to the Government, has had a very marked effect upon the decision of the latter; the Bill will be carried with a great majority.

Regulations for the Sale of Caustic Potash.

The Vienna Gesellschaft der Aerzte is also to be thanked for another important reform taken up by a specially appointed committee to prevent the frequent accidents which occur from drinking caustic potash by mistake. The investigations of the body appointed for this purpose have resulted in the adoption of a uniform strength of the solution (1·25 per cent.) as the standard solution for trade; this can be sold free from restrictions. Any stronger solution necessitates the vendor adopting certain precautions, transgression of which will make him liable to punishment. The liquid must not be sold to children under 16 years. It must be kept and sold in bottles having a different appearance from the bottles used generally for beverages. The contents of the vessel must be stated clearly on a prominent label, as well as the percentage of the liquid. The use of the potash in household work should be discouraged, according to the suggestions of the committee, by adding to it an unpleasant-smelling substance, which would also prevent people from drinking it. By order of the Ministry of the Interior the above-mentioned regulations have already been put in force. The importance of the action thus suggested by the medical corporation may be judged by a few figures. Within the last five years not less than 370 cases of injuries by swallowing caustic potash have been treated in Vienna hospitals alone. It is true, there were many cases of attempted suicide amongst them, and these persons would have selected some other means of self-destruction if they had no access to this liquid, but there were still quite sufficient persons who inadvertently partook of the poison to make precautions as to sale necessary. It may be added that in the cases of poisoning, although the immediate effects were not always fatal, the results have often been fatal indirectly, by subsequent inanition, due to œsophageal injury.

March 31st.

[1] Vide the Vienna letter in THE LANCET, May 30th, 1908, p. 1591.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Pellagra in the United States.

A RECENT report of the Public Health and Marine Hospital Service of the United States Treasury Department announces that a disease having the characteristics of the pellagra of Southern Europe has appeared in the southern states and is spreading rapidly. Under the auspices of the State Board of Health of South Carolina a conference was recently held at which this new disease was discussed in all of its aspects and every effort was made to dispel the mystery surrounding its origin. It was estimated that there were at least 500 cases in the State of South Carolina. The theory was advanced that the disease is due to the use of damaged corn (maize) as a food. The corn is rendered unfit for food by the modern intensive methods of farming by which the corn is harvested while the grain is unripe and putrefaction occurs as a result. This theory prevails in the Lombardy and Piedmont districts of Italy, the hotbed of pellagra, and the Italian Government has issued instructions to prevent this defect in the harvesting of corn. This theory was denied by some members of the conference in South Carolina, who asserted that from their own observations there are extensive regions to-day where pellagra is rampant but where corn is neither grown nor used as a food, while, on the other hand, there are large areas where this cereal is the principal article of diet, with all of its fungi and bacteria, but pellagra is unknown. The conclusions of the conference were directed towards an immediate and widespread study of the disease.

Increase of Cancer in New York.

Dr. Harvey R. Gaylord, Director of the New York State Cancer Laboratory at Buffalo, reports to the State Department of Health that the increase of cancer in the State of New York is little short of appalling. The average death-rate per 100,000 population for 1906, 1907, and 1908, taken collectively, is 76, showing an increase in 13 years—from 1896 to 1909—of 28·8 per cent. During the same period the death-rate from tuberculosis has diminished 9·1 per cent. The Director attributes the difference in the death-rate of these diseases to our knowledge of the infectious character of tuberculosis and the well organised warfare which is being opposed compared with our knowledge of cancer. There are but three institutions in this country devoted to the study of cancer exclusively besides the New York Laboratory, and the total expenditure in cancer research by these four institutions is less than $35,000 annually.

The Centenary of the Birth of Dr. Oliver Wendell Holmes.

The centenary of the birth of Dr. Wendell Holmes falls on August 29th, but circumstances have induced the Cambridge Historical Society to select April 27th as the day of celebrating the occasion. One of the interesting features will be the attendance of the students of the medical department during the period that Dr. Wendell Holmes filled the professorship of anatomy, 1841–1882. President Eliot of Harvard University will preside, and Dr. Edward Waldo Emerson, son of Ralph Waldo Emerson, will give the principal address.

The Prevention of Ophthalmia Neonatorum.

Ophthalmia neonatorum as a cause of blindness has attracted wide attention in this country and as a result preventive measures are being advocated in many of the States. The most recent expression on the subject is by the American Public Health Association in an elaborate report. From this report it appears that about 28·69 per cent. of the new admissions to ten schools in eight States and the Province of Ontario, Canada, in 1907, were needlessly blind. In the Pennsylvania School for the Blind the average percentage of eight years' admissions was 33·36 of ophthalmia neonatorum. The conclusion of the committee is that the

responsibility for the control of this infective disease rests with the health authorities throughout the country, and it approves of the recommendations of the American Medical Association, which are briefly: (1) the enactment of laws in each State and federal territory requiring the registration of births and placing the supervisory control and licensing of midwives in the boards of health; (2) the distribution by health boards of circulars of advice to midwives and mothers, giving instructions as to the dangers, methods of infection, and prophylaxis of ophthalmia neonatorum; (3) the preparation of receptacles containing the chosen prophylactic with specific directions for its use; (4) the maintenance of proper records in all maternity institutions and other hospitals in which children are born, of the number of cases of ophthalmia neonatorum, with the method of treatment, and the results; and (5) periodic reports to boards of health by all physicians engaged in obstetrics of the number of cases of ophthalmia neonatorum that have occurred in their practice within a specified time, what prophylatic measures were employed, and with what results.

The Administration of the Pure Food Law.

The Pure Food Law is giving rise to interesting decisions of the courts, relative to the duties of boards of health and health officers. In a suit to enjoin the city of Chicago and its officials from summarily seizing and destroying food in cold storage as unfit for human consumption, the court held that provision for a hearing before seizure and condemnation and destruction of food which is unwholesome and unfit for use is not necessary; that the right to so seize is based on the right and duty of the State to protect and guard as far as possible the lives and health of its inhabitants; and that it is proper to provide that food which is unfit for human consumption should be summarily seized and destroyed to prevent the danger which would arise from eating it. It was contended that there was no emergency in this case requiring speedy action for the destruction of the poultry, as the food was in cold storage and would continue in the same condition for three months, and therefore the defendants had ample time to give notice to the owner and have a hearing as to the condition of the food. But the court held that if a hearing is to be always necessary the question arises as to what is to be done with the food in the meantime. Is it to remain with the cold storage company, and, if so, under what security that it will not be removed? As the legislature made no provision for a hearing, and as the owner of the food is amply protected against the party seizing the food by a subsequent action, the court sustained the health authorities in their summary proceedings.

What is an Accident?

A physician of New York has made a claim for insurance money on the basis of an attack of appendicitis caused by the accidental swallowing of a lump of solder. The patient, aged 69 years, felt a hard mass in his mouth while eating his dinner, and in his effort to catch it with his teeth swallowed it. A few days later he developed acute appendicitis and at the operation the appendix was found perforated by a mass of solder, which lay in the perforation, the pointed portion protruding through the wound. There were no evidences that there had been any previous disease of the organ. On recovery the physician made a claim against the insurance company for an accident. Commenting on the case the surgeon, Dr. Robert T. Morris, states that in this case we have a question bearing on the matter of accident insurance which may call for a new adjudication of the word "accident," and he contends that perforation of the appendix by the lump of solder accidentally swallowed was not materially different from a perforation that might have occurred from the accidental discharge of a pistol carrying the solder as a missile.

March 26th.

NEW ZEALAND.

(FROM OUR OWN CORRESPONDENT.)

Friendly Societies and the Medical Profession.

REPRESENTATIVES of the medical profession and the friendly societies had a meeting in Wellington recently to try to come to some general agreement as to fees and conditions of service. Much was hoped for from the meeting, but unfortunately the hope was not fulfilled. The main point—namely, that an arbitration court might be set up which would deal with all disputes between the profession and the societies—was not finally settled. If some general agreement could have been come to regarding this it would have been an excellent thing, because the spectacle of medical men fighting unions in the lay press is never edifying. Something, however, has been accomplished in the direction of a common understanding, and perhaps another meeting will see this most desirable arrangement made secure.

The Registration of Births and Deaths.

A Committee of the Upper House, presided over by the Honourable Dr. Collins, sat and inquired into the question of whether some alteration should not be made in the matter of the registration of births and deaths. By an Act of last year it was provided that:—

1. It shall be the duty of the occupier of any house in which a child is born alive to give notice of the fact of the birth, the date on which it occurred, and the name of the mother or father of the child, to the registrar of births of the district in which the birth took place.
2. Such notice shall be in writing, delivered or posted by registered letter to the said registrar within 72 hours after the birth if in a city or borough, or 21 days in any other case.
3. If the occupier fails to comply with the provisions of this section he shall be liable to a fine not exceeding £5.

Evidence was given by the Registrar-General generally against any alteration. As the law now stands registration of a death need not be made before 31 days have elapsed. One consequence of this is that a person may have been buried some weeks before he is officially dead. The scattered nature of the population was urged as a reason why it was not feasible to lessen the time; but it was pointed out that the conditions which obtained when the present law was passed did not now exist, and that there is no reason why notification of the birth or death should not be made within three days by registered post. All the medical witnesses insisted upon the necessity for an alteration in the law. The Chief Health Officer pointed out the difficulties which existed in the checking of infectious disease through the long delay. Some interesting evidence was given by a local undertaker, who assured the Committee that he always made certain that his subject was "completely dead" before he placed him in his coffin. The setting up of the Committee was occasioned by the suggestion that sometimes live persons had been interred. It would seem from the evidence given that this danger was small except in the case of so-called stillborn children. It is to be hoped that some alteration in the law may result. Several witnesses insisted that the medical man should see the dead body before he gives his certificate. This undoubtedly could easily be done in the larger centres in deference to the general feeling that the practice of giving a certificate of death on the statement of a friend or relative of the deceased is entirely wrong.

The Dentists' Association.

The annual meeting of the Dentists' Association was held in Wellington on Jan. 4th. The question of the medical inspection of school children was much in evidence and some very important data were submitted with reference to the condition of the teeth of the children attending the State schools. The President, Mr. A. Hoby, dealt very exhaustively with this matter in his presidential address. The Chief Health Officer, Dr. J. M. Mason, who presided at the opening, in the course of his speech dwelt upon the rightness of the rule which prevents members of the profession from advertising. The meeting was followed by a dinner at which several Ministers of the Crown were present.

Obituary.

By the death of Dr. R. H. Bakewell of Auckland the profession in New Zealand has lost one of its oldest members. For some time past he had been unable to do much in the way of general practice, but he always wielded a ready and sometimes sarcastic pen. Dr. Bakewell had a very varied experience. Serving as surgeon in the Crimean war he was court-martialled for writing letters to the newspapers. He then became a general practitioner in England and subsequently was appointed health officer at Trinidad. Finally he settled in New Zealand, where he practised for many years. He volunteered for service when the Boer war broke out, but whatever he was he was always a voluminous contributor to

the lay and medical papers and was a fearless writer. An article appeared in your columns last year summarising Dr. Bakewell's report on a series of people undergoing a "fasting cure" at Wanganui. Dr. Bakewell's death leaves a distinct gap in this colony.

March 1st.

Obituary.

CHARLES COATES, M.D. ABERD., F.R.C.P. LOND. AND EDIN., M.R.C.S. ENG.,

CONSULTING PHYSICIAN TO THE ROYAL UNITED HOSPITAL, BATH.

BY the death of Dr. Charles Coates, which occurred on March 23rd at his residence, 10, Circus, Bath, a house in which he had lived for over 50 years, Bath loses her oldest physician. Dr. Coates, who was in his eighty-fourth year, had retired from practice for about ten years. He was the son of the late Mr. W. H. Coates and qualified M.R.C.S. Eng. in 1851. He then spent some time as clinical assistant at Brompton Hospital for Consumption. In 1857 he graduated M.D. of the University of Aberdeen and in the same year was admitted a Fellow of the Royal College of Physicians of Edinburgh. In 1873 he was admitted a Fellow of the Royal College of Physicians of London. After graduating at Aberdeen Dr. Coates settled in Bath where he soon made his mark. Early in his career he was elected physician to the Royal Mineral Water Hospital and also to the Royal United Hospital, and on resigning the latter post in 1882 he was elected honorary consulting physician. He was also honorary physician to the School for Daughters of Officers of the Army. In his time Dr. Coates had the most extensive practice of any medical man in Bath and the neighbourhood. He was an eminently sound and practical physician of the old school, one who treated the patient rather than the disease. He was well read and highly cultured but very modest and retiring in his disposition. Possessing ample means he was extremely generous, and in 1899 he gave £1000 to the Bath Bluecoat School, which was then in sore need. Some two years ago he gave a similar sum to the Royal College of Physicians of London to be expended in hospitality by the College.

The funeral was held at Lansdowne Cemetery on March 26th, the arrangements, in accordance with Dr. Coates's express wishes, being of as simple a nature as possible. Besides his purely professional appointments Dr. Coates was a trustee of Partis College and also a trustee of the Holburne Museum. By special request of Dr. Coates no detailed obituary notice of his life was to appear in any public paper, professional or lay.

CHARLES ERNEST BAKER, B.A., M.B., B.C., D.P.H. CANTAB., F.R.C.S. ENG.

ON March 28th Mr. Charles Ernest Baker passed away quite suddenly at his residence in Gledhow-gardens, South Kensington. He appeared to be in good health except for the fact that he had been troubled with sleeplessness. He was averse to taking drugs to relieve the trouble, but on Saturday night decided to take a small dose of veronal. He was found unconscious in the morning, and in spite of the unremitting care and sustained efforts of his medical friends passed away after a few hours without regaining consciousness. An inquest was held and a verdict returned of "Death by misadventure," but as the published reports of the inquest give the impression that he was in the habit of taking drugs to induce sleep it is well to state that he had never done so previously except under medical advice, and that his tragic end must be ascribed to some idiosyncrasy on his part with regard to this particular drug. He was educated at Haileybury and at Trinity College, Cambridge. At Cambridge he took first-class honours in the natural science tripos and also the M.B. and B.C. degrees and subsequently the D.P.H. He proceeded to St. Bartholomew's Hospital, where he was a most successful student and where he served as house surgeon. He afterwards held the offices of house surgeon to the Royal Orthopædic Hospital, resident medical officer to the Royal Free Hospital, and house surgeon to the East London Hospital for Children. He was admitted to the Fellowship of the Royal College of Surgeons of England in 1893.

Mr. Baker possessed abilities of a high order, and was from the commencement until the end of his career a very earnest student of his work, while his character and disposition were such that he endeared himself greatly to those with whom he was brought in contact. He was a man of very high principles, both in his private and professional life, but so quiet and reserved by nature that only his intimate acquaintances were able to know the real man and realise how high were his ideals. The news of his death at the early age of 44 years will be received with profound regret by his brethren in the profession, who recognised his probity, admired his ability, and held his sterling qualities in high esteem. He leaves a widow and two daughters to mourn their loss.

AUGUSTUS HENRY COLLET, M.R.C.S. ENG., L.S.A.

QUITE unexpectedly Worthing lost one of its best-known medical practitioners on March 29th. It was only known by a comparatively few that Mr. A. H. Collet was very unwell; in fact, only three days prior to his death he was able to see some patients at his surgery. But an attack of influenza ended in pneumonia which resulted fatally in a few hours. Augustus Henry Collet, who was born in 1845 and was thus 64 years of age, took the B.A. degree at Cambridge at the age of 20 years, and proceeding to study medicine at Guy's Hospital qualified M.R.C.S. Eng. and L.S.A. in 1869, four years later. He eventually succeeded to the practice founded by his father at Worthing, and actively identified himself with all local movements. In connexion with the Worthing Hospital Mr. Collet's death will be severely felt, for his association with this institution dates back to 1871, when he was elected on the honorary medical staff. In 1887 he became senior medical officer, which post he held until his death, while only quite recently he was elected chairman of the management committee. In addition to an extensive private practice Mr. Collet was also medical officer to various local friendly societies.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. v. Mangoldt, one of the most eminent surgeons of Dresden. He had been assistant to Professor Thiersch of Leipsic. His death occurred quite suddenly from cardiac trouble; he was only 50 years of age.—Dr. Carl Driver of Reiboldsgrün, a well-known advocate of physical and dietetic treatment of phthisis.—Dr. Thaddeus A. Reamy, formerly professor of gynæcology in Cincinnati.—Dr. Ludwig von Thanhoffer, professor of anatomy in Budapest.—Dr. Barette, professor of clinical surgery in the Caen Medical School.—Dr. Spéransky, *privat-docent* of dermatology in Moscow.—Dr. Vlayeff, *privat-docent* of medicine in the Military Medical Academy, St. Petersburg.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination of the Conjoint Examining Board held on March 29th, 30th, and 31st, and April 1st, 2nd, and 3rd, 1909, the following gentlemen were approved in the subjects indicated below:—

Chemistry and Physics.—Claude Hamilton Blair Avarne, London Hospital; Maurice Holdsworth Barton, University College; Gordon Robert Craig, Polytechnic Institute; Richard William Davies, St. Mary's Hospital; Murray Dudley Evans, London Hospital; Rae Haydn Gaverick, St. Bartholomew's Hospital; Owen Hairsine, Birkbeck College; Thomas Watson Hancock, London Hospital; Newton Hoffmeister, Middlesex Hospital; Eric Llewelyn Ivens, London Hospital; John Wallace Kemp, Guy's Hospital; Tom Ramsden Kenworthy, Leeds University; Hugo Holger August Kleberg, Polytechnic Institute; William Kellock McKay, Guy's Hospital; Richard Turner Macrae, London Hospital; Douglas Duncan Malpas, Middlesex Hospital; Benjamin Robert Mayman, King's College; Arthur Daniel Morris, University College, Cardiff; Harold Parker, Leeds University; William Percivall Penhale, Middlesex Hospital; George Stanley Phillips, University College, Cardiff; Sydney William Gardiner Ratcliff, Birkbeck College; George Marsden Roberts, St. Bartholomew's Hospital; Granville Douglas Robertson, St. Mary's Hospital; Harold Arthur Rowell, St. Thomas's Hospital; Charles Tolmie Tresidder, St. Bartholomew's Hospital; Lawrence Edmund van Geyzel, St. Mary's Hospital; Vernon Charles Whitley Vickers, Cambridge University

Chemistry.—George Aspinall-Stivala, St. Bartholomew's Hospital; Arthur Charles Oakley-Brown, Gloucester Technical School; Charles Frank Burton, London Hospital; Gerald Cock, Charing Cross Hospital; Thomas Hungerford Cresswell, Middlesex Hospital; Hubert Roy Dive, St. Bartholomew's Hospital; William Trevor Flooks, University College, Cardiff; William Reginald Huleatt Heddy, Middlesex Hospital; William Ben Glynn Jones, Liverpool University; Joseph George l'Etang, St. Bartholomew's Hospital; Joseph Lloyd, Westminster and King's College Hospitals; Arther Geoffrey Morris, University College, Bristol; Arthur Abercrombie Prichard, University College, Cardiff; Cyril Seys Ramsay-Hill, Brighton Technical School; Philip Hugh Rawson, London Hospital; John Griffith Richards, Guy's Hospital and Wandsworth Technical Institute; Anthony Wellesley Monckton Sawyer, Polytechnic Institute; Kenneth Vickerman Smith, Charing Cross Hospital; Oscar Ramsay Unger, University College Hospital; and Frank Hamersley Woods, St. Bartholomew's Hospital.

Physics.—Cecil Stuart Baxter, Liverpool University; William Arthur Hazlerigg Noel Bell, St. Thomas's Hospital; John Henry Bennett, St. George's Hospital and King's College; Herbert Chorley, Liverpool University; Albert John Drew, Guy's Hospital; Harry Dudley, University College and Battersea Polytechnic; George Graham Bedingfield Holroyde, London Hospital; Sydney Hudson Keys, Birkbeck College; Edward Hugh Morris, Charing Cross Hospital; Henry Felix Mullan, London Hospital; Lionel Everard Napier, St. Bartholomew's Hospital; Tha Htoon Oo, Cambridge University and Polytechnic Institute; Garnet Wolseley Pool, St. Thomas's Hospital; Clive Watriey Roe, Birkbeck College; Philip Savage, Guy's Hospital; Evelyn Alexander Sutton, Charing Cross Hospital; George Harvey Duder Webb, University College; and Edgar Raskelly Williams, Plymouth Technical School.

Biology.—Hallowes Lloyd Addison, King's College; Alan Douglas Anderson, University College; Claude Hamliton Blair Avarne, London Hospital; James Dorrington Bangay, St. Bartholomew's Hospital; Maurice Holdsworth Barton, University College; Stanley Samuel Beare, Middlesex Hospital; Edward Albert Brock, St. Bartholomew's Hospital; Francis Howard Cleveland, St. Bartholomew's Hospital; George Malcolm Coope, Manchester University; Richard William Davies, St. Mary's Hospital; Edmund Rupert Dermer, Middlesex Hospital; Carl Keatinge Graeme Dick, St. Mary's Hospital; Hubert Roy Dive, St. Bartholomew's Hospital; Albert John Drew, Guy's Hospital; Sidney Ernest Elphick, St. Mary's Hospital; Cuthbert Lindsay Emmerson, University College, Bristol; George Frederick Fawn, University College, Bristol; Louis Edward Forster, Liverpool University; John Wesley Gilbert, University College, Bristol; Thomas Sacheverell Greenaway, Westminster Hospital and King's College; Evan Williams Griffith, University College, Cardiff; Howell Gwynne-Jones, London Hospital; Robert John Harley-Mason, Middlesex Hospital; Rupert Bannatyne Hick, St. Mary's Hospital; Frederick Theophilus Hill, St. Bartholomew's Hospital; George Gerald Jack, Middlesex Hospital; Richard Bertram Johnson, University College, Bristol; John Wallace Kemp, Guy's Hospital; Joseph Kinnear, Manchester University; Joseph George l'Etang, St. Bartholomew's Hospital; William Douglas McDonald, Birkbeck College; Douglas Alan Shaw McGregor, University College, Cardiff; William Kellock McKay, Guy's Hospital; Kenneth Holl McMillan, St. Thomas's Hospital; Oscar Gladstone Maginness, St. Bartholomew's Hospital; Douglas Duncan Malpas, Middlesex Hospital; Claude Jocelyn Delabere May, University College, Bristol; Arthur Daniel Morris, University College, Cardiff; John Neal, St. Bartholomew's Hospital; Harold Parker, Leeds University; William Percivall Penhale, Middlesex Hospital; George Stanley Phillips, University College, Cardiff; Ibrahim Rashad, St. Thomas's Hospital; George Marsden Roberts, St. Bartholomew's Hospital; James Albert Robinson, St. Bartholomew's Hospital; Clive Watney Roe, Birkbeck College; Harold Arthur Rowell, St. Thomas's Hospital; Philip Savage, Guy's Hospital; Simon Simons, University College, Cardiff; Charles Rees Smith, Guy's Hospital; Kenneth Vickerman Smith, Charing Cross Hospital; Hugh Gordon Sparrow, King's College; William Allan Stewart, London Hospital; William Vere Taylor Styles, Middlesex Hospital; Evelyn Alexander Sutton, Charing Cross Hospital; Henry John Hugh Symons, King's College; Aly Heidar Taymour, Guy's Hospital; Thomas Harold Thomas, London Hospital; Maurice Lawrence Treston, London Hospital; Algernon Randolph Upton, St. Bartholomew's Hospital; Lawrence Edmund van Geyzel, St. Mary's Hospital; George Harvey Duder Webb, University College; Kim Glen Wee, St. Thomas's Hospital; Trevor Cadogan Williams, University College, Cardiff; Frank Hamersley Woods, St. Bartholomew's Hospital; and Arthur Kendal Scott Wyborn, Middlesex Hospital.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held in March the following candidates were successful:—

FINAL M.B. AND CH.B. EXAMINATION.

J. A. Bateman, Norman Booth, *Ernest Howe, M. C. S. Lawrance, T. M. Popple, James Ramsbottom, †B. W. E. Trevor-Roper, W. W. Uttley, H. V. White, and Jerry Whitehead.

Second-Class Honours.—B. W. E. Trevor-Roper.

Obstetrics.—‡R. J. Batty, Elsie Brown, and W. W. Stacey.

Surgery.—Elsie Brown.

Forensic Medicine and Toxicology.—‡H. E. Allanson, Estelle I. E. Atkinson, G. M. Benton, ‡C. G. Brentnall, W. A. Bullough, J. F. Cocker, ‡D. I. Connolly, G. T. Cregan, ‡F. H. Diggle, John Gow, ‡T. T. Higgins, R. A. Jackson, N. T. K. Jordan, Neil McDonald, ‡Edith M. Maraden, ‡C. B. Marshall, G. E. E. Nicholls, Harry Platt, ‡Alexander Porter, ‡A. A. Smalley, ‡Norman Tattersall, R. H. Titcombe, W. B. Wamsley, ‡J. F. Ward, and ‡F. G. Wrigley.

THIRD M.B. AND CH.B. EXAMINATION.

General Pathology and Morbid Anatomy.—‡A. E. Ainscow, Rupert Briercliffe, S. J. Clegg, John Cowan, Caleb Davies, C. B. Davies, H. A. Dunkerley, E. R. Eatock, A. W. Gaye, Edgar Grey, Harold Heathcote, ‡R. C. Hutchinson, R. B. Jackson, Geoffrey Lapage, Mabel E. May, Alexander Reid, J. R. Rigg, J. B. Scott, ‡W. A. Sneath, James Walker, and Charlotte E. Warner.

FINAL B.D.S. EXAMINATION.

Arnold Renshaw.

DIPLOMA IN DENTISTRY.

Final Examination.—Joseph Morrey, John Riley, and T. B. Smith.

Third Examination.—W. G. Dykes and W. H. Maden.

Anatomy and Physiology.—C. E. McNabb.

DIPLOMA IN PUBLIC HEALTH.

Agnes Bernfeld, L.S.A.; Angus G. McDonald, M.B., C.M.; Hector Mackenzie, M.B., Ch.B.; W. B. Martin, M.R.C.S., L.R.C.P.; and J. G. Woolham, M.B., Ch.B.

* With distinction in Obstetrics.
† With distinction in Surgery.
‡ With distinction.

UNIVERSITY OF DURHAM.—At the third examination for the degree of Bachelor of Medicine held in March the following candidates were successful:—

Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology.—William George Bendle (second-class honours), Bloomfield George Henry Connolly, Roger Errington, Francis Percy Evers, Eric Lawrence Hancock, Howard Tomlin Hunter, and Eva Lumb, College of Medicine, Newcastle-upon-Tyne; Ernest Percy Martin, St. Thomas's Hospital; and Alfred Tulloch Thompson and Thomas Ruddock West, College of Medicine, Newcastle-upon-Tyne.

UNIVERSITY OF EDINBURGH.—At the graduation ceremonial, which took place on April 2nd in the M'Ewan Hall, among those recommended for degrees were the following:—

Doctor of Science.—James Andrew Gunn and William Burney Bannerman.

Bachelor of Medicine and Master in Surgery.—Charles Richardson White.

Bachelor of Medicine and Bachelor of Surgery.—William Bainbridge, John Henry Bell, John James Percival Charles, William Campos Fragoso, Kenneth Fraser, Daniel M'Donald Grant, John Alexander Harley, John Hewat, Victor Donald Orr Logan, Alexander Stewart Macbeth, David M'Carrol, George Munro Mackay, John Cosserat Mackenzie, Alexander Cameron M'Killop, Alexander Kenneth Maclachlan, William Menzies Menzies, Hans Lowry Morrow, Walter Gladstone Riley, Eleanor Margaret Thompson, Norval James Watt, and William Cecil Whiteside.

Diploma in Tropical Medicine and Hygiene.—Samuel Alexander M'Clintock, Stewart M'Naughton, and Hugh Lancelot Sells.

UNIVERSITY OF GLASGOW.—The following have passed the first professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (B., Botany; Z., Zoology; P., Physics; C., Chemistry):—

James Angus (Z.), Henry Stanley Banks (Z., C.), John Smith Knox Boyd (Z., C.), William Adam Brechin (Z., C.), David Peebles Brown (Z., C.), William Brown (B.), James Law Brownlie (Z., P., C.), Alexander Grahame Buchanan (C.), James Wilson Burton (B., Z.), John Campbell (C.), William Leonard Cassels (C.), James Alexander Chrystie (Z., P.), John MacDougall Clark (B., Z.), Benjamin Cohen (Z., C.), Wallace MacCallum Conley, M.A. (Z., C.), John Connell (Z., C.), Thomas Muir Crawford (Z., C.), Nathaniel Crichlow (Z., C.), Lawrence Crombie (C.), William Cullen (C.), Walter Thompson Currie (B., P.), William Donald (B., Z.), William Campbell Fleischmann (Z., C.), James Bryan Fotheringham (B., P.), William Fotheringham (P.), James Fraser (B., Z., C.), Leopold Glushak (Z., C.), Ian Grant (Z., C.), James Lochhead Gregory (B., Z., P., C.), Eduardo Guillermo Sanchez Hall (Z., C.), John Alexander Harper, M.A. (B.), Daniel Christopher Hayes (C.), Peter Henderson (P.), William John Henry (Z., C.), George Hislop (Z., C.), William Hornsby (Z., C.), Thomas Cameron Houston (C.), William Muir Howells (Z., C.), Douglas MacInnes Hunter (Z., C.), Thomas Pollock Inglis (B., P., C.), William Yuill Jamieson (Z.), John Finlayson Lang, M.A. (Z., C.), Robert Aim Lennie (P., C.), Alexander Lindsay (Z., C.), Reginald Lyon (C.), Douglas M'Alpine (C.), James Learmont M'Bean (Z., C.), Peter Alexander M'Callum (Z., C.), Hugh Douglas M'Crossan (Z.), Patrick M'Diarmid (Z., C.), John M'Ghie (Z.), John MacInnes (Z., C.), Donald M'Donald M'Intyre (Z.), Robert Hugh M'Killop (Z., P.), James Robertson Cowper Mackintosh (Z., C.), Robert M'Lean (Z., C.), Neil Macleod (Z., C.), Ewen Stewart Macphee (Z., C.), John Henry Magoveny (B., C.), William Ebenezer Maitland (Z., C.), Andrew Paton Martin (B., Z.), Thomas Spence Meighan (B., P.), Archibald Underwood Millar (Z., C.), William Montgomery (B.), Kenneth Duncan Murchison (B., Z., P., C.), Michael Murphy (Z.), Thomas Murray Newton (Z., C.), Thomas Augustine O'Brien (Z.), James Leslie Ruthven Philip (Z., C.), Robert Ray (B., Z., C.), David William Reid (B., C.), David Reid Eccles Roberts (Z., C.), Alfred Leopold Robertson (B., Z., P.), Frank Morton Robertson (Z., C.), James Inglis Robertson (B.), Stuart Dewar Robertson (P.), Donald Alexander Ross (Z.), Archibald M'Kerrow Russell (Z., C.), Frank Sherar (P.), Neil Islay Sinclair (C.), John Finlayson M'Gill Sloan (B.), David Smith (Z., C.), Ronald Stewart (Z., C.), William Ballantine Stewart (Z., P., C.), Ian Dishart Suttie (Z., C.), George Taylor (C.), John Cameron Thomson Teggart (B., P.), Carel Johannes van Lingen (C.), Angus Macpherson Walker (B., Z., P.), James Livingstone Walker Z., C.), James Cairns Watt (Z., C.), Matthew White (C.), Frederi k John Whitelaw (Z., C.), James Whiteside (B., P.), and Andrew Morton Young (Z., C.).

Women.—Nora Maud Aden Allan (Z., C.), Cecilia Smail Turnbull Anderson (Z., C.), Grace Gillies Turnbull Anderson (Z., C.), Margaret Jarvey Brown (Z., C.), Ethel Crawford (Z.), Margaret O'Rourke Gallagher (P., C.), Janet Fraser Henderson (C.), Mary Pringle Hislop (Z.), Annie Rankine M'Kail Z., C.), Margaret Helen

M'Killop (P.), Sarah Anderson Jamieson Rankine (Z., C.), Marion Thompson (Z., C.), Janet Morris Walker (P., C.), and Josephine Adelaide Woods (P., C.).

The following have passed the second professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (A., Anatomy; P., Physiology; M., Materia Medica and Therapeutics):—

Thomas Adam, M.A. (A.), Mark James Aitken (P.), James Browning Alexander (P., M.), James Wallace Anderson (P., M.), Alexander John Archibald (P., M.), Charles Averill (A., P.), Thomas Stewart Barrie (A., P., M.), William Egon Halman Beard (A., P., M.), James Elliot Black (A.), Vynne Borland (P., M.), David Sands Brough (P.), Alexander Hogg Brown (A.), James Turner Brown (A., P.), Agnus Dugald Buchanan (A., P., M.), Charles Cameron, M.A. (A., P., M.), John Campbell (A., P., M.), George Wilson Clark (M.), George Cochrane, M.A. (P., M.), James Alphonsus Joseph Conway (M.), Robert Corbett Corbett (P., M.), John Nairn Dobbie (P.), Peter Drummond (A.), Kinloch Falconer (A., P., M.), James Findlay, M.A. (P., M.), Robert Findlay (M.), Thomas Scoular Fleming (A.), Hugh Forrest (P., M.), David Thomas Crichton Frew (A., P., M.), Leander Lowrie Fyfe (P., M.), Archibald Gardner (A., P., M.), Andrew Garvie (A., P., M.), John Gibson (A., P.), William Gordon Goudie (A., P., M.), Cecil William Fletcher Greenhill (P.), John Radcliffe Grice, M.A. (A., P., M.), Charles Hope Haddow (A., P., M.), James Stewart Hall (A., P., M.), Andrew Smith Hannay (P., M.), James Hendry, M.A. (A.), John Richmond Herbertson (A., P., M.), Andrew Gray Holms (P., M.), James Johnstone (A., P., M.), William Johnstone (A., P., M.), Alexander Kirkhope (A., P.), John M'Callum Lang (A., P., M.), George Smith Livingston (M.), John M'Cartney (A., P.), Norman M'Farlane (P., M.), James David Mackinnon (P., M.), William MacMurray (A., P., M.), William Wyllie MacNaught (A., P.), Stephen Anderson MacPhee (P., M.), John Pearson M'Vey (A., P., M.), Malcolm Manson, M.A. (A., P.), Francis William Martin (A.), Farquhar Matheson (A., P. M.), James Matheson (A., P., M.), John Park Mathie (M.), Stuart Spence Meighan (A., P.), Archibald Mitchell (M.), Andrew Muir (A., M.), Arthur Alexander Murison (M), Michael John Murray (P., M.), Hugh Loudon Neil (A., P.), Hugh Paterson (P., M.), James Eric Paterson (A., P., M.), James Francis Quigley (Ruthergien) (A., P., M.), Alexander Rae (A., P., M.), Henry Charles Deans Rankin (P.), Hugh Young Riddell (P., M.), John Livingstone Scott (A., M.), William Logan Scott (P., M.), James Smith (P., M.), James Anstruther Smith (P., M.), John Ferguson Smith (A., P., M.), William Sneddon (P.), Malcolm Sommerville (P., M.), Roderick Alexander Steven (M.), Lawrence Tweedie Stewart (P., M.), Thomas Louis Grenet Stewart (A.), John Norman Macdonald Sutherland (A.), William Rowland Taylor (M.), James Alexander Hamilton Telfer (A., P., M.), William Tudhope (P., M.), Gordon Alexander Valentine (A., P., M.), James Douglas Walker (A., P., M.), Alexander Guthrie Semple Wallace (A., P.), Tom Waterhouse (P.), Egerton Carl White (P.), Thomas Whitelaw (M.), Alexander Stewart Wilson (A., P., M.), Archibald Wilson (M.), Douglas Wilson (A., P.), Hugh Gilmer Wilson (P., M.), and Fergus Hay Young, M.A. (A., P., M.)

Women.—Mary Alexander (M.), Agnes Barr Auchencloss (A., P., M.), Marie Alexina Annette Beard (A., M.), Louisa Emma Dodge (M.), Isabel Inglis (P.), Jeanie Walker Jones (A., P., M.), Barbara Macgregor (A., P.), Katherine Stewart Macphail (A., P.), Ellen Brown Orr (A., P.), Barbara Grace Rutherford (A., P., M.), Christina Hamilton Shearer (P.), Isabel Jane Stark (A.), and Barbara Sutherland, M.A. (P., M.).

The following have passed the third professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (P., Pathology; and M., Medical Jurisprudence and Public Health):—

Andrew Clark Anderson (M.), Donald Arbuckle (P., M.), Charles Auld (P., M.), Robert Blackie Austin (P., M.), John Bruce Baird, B.Sc. (P.), John Broadfoot (P., M.), James Buchanan (P., M.), James Alexander Stewart Burges (P.), Thomas Simpson Campbell (P., M.), William George Clark (P., M.), Robert Hunter Deans (P., M.), James Thomson Dick (P., M.), Donald Downie (M.), Robert Drummond (P., M.), James Dunlop, M.A. (P., M.), William Deanburn Dunlop (M.), Andrew Scoble Findlay (P., M.), Thomas Lochhead Fraser (M.), Nicolas Gebbie (P., M.), Robert Gilchrist (P., M.), Pietro Giuliani (P., M.), John Gray (P.), Albert William Gregorson (P., M.), Archibald Campbell Haddow (P., M.), John Reid Haldane (P.), Allan Byars Hamilton (P., M.), William Hamilton (P.), James Jack (P., M.), James Macalian (M.), Donald Christopher Macdonald (P., M.), Ian Macdonald (P., M.), Malcolm Angus MacDonald (P., M.), William Macewen (P., M.), Alastair Macintyre (P., M.), Balfour M'Kean (P., M.), John Gladstone Mackenzie (P.), Thomas Jones Mackie (P.), William Maxwell M'Kie (P., M.), Donald Mackinnon (M.), Andrew Bruce MacLean (P., M.), William Alexander Maclennan (P.), Alexander Thomson M'Whirter (P.), Angus Millar (P.), Campbell Lamont Miller, M.A. (P., M.), Robert Stewart Miller (P.), Robert Wright Mitchell (P.), John Mowat (P.), Andrew Ross Muir (P., M.), Findlay Murchie (P.), John Paterson (P., M.), Thomas Paterson (P., M.), Richard Reid Kirkwood Paton (P., M.), John Penman (P., M.), Arthur Poole (P., M.), Daniel Wright Ritchie (P., M.), John Ivison Russell (P.), Joseph Henry Napoleon Felix Savy (P., M.), James M'Alpine Scott, M.A. (P., M.), John M'Naught Scott, M.A. (P., M.), Alexander Hunter Sinclair (P.), James David Speid Sinclair (P.), George Rae Spence (P., M.), John Stewart (P., M.), John Torrance Weir Stewart (M.), Gilbert Innes Strachan (P., M.), Andrew Edgar Struthers (P., M.), Charles Lindsay Sutherland (P., M.), William Oswald Taylor (P.), Stephen Veitch Telfer (P., M.), Aidan Gordon Wemyss Thomson (M.), James Lachlan Ure (P.), Harold Edward Whittingham (P., M.), James Williamson (Holytown) (P.), George Jackson Wilson (P.), and Henry Yellowlees (P., M.).

Women.—Christina Barrowman (M.), Honoria Somerville Keer (M.), Agnes Mary M'Michael (P., M.), Margaret Muir (P.), Mary Amelia Pilliet (P.), Florence Elizabeth Sexton (P., M.), Jemima Wallace (P.), and Marion Aitken Wylie, M.A. (P.).

The following passed with distinction in the subjects indicated:—

First Examination.—In Zoology and Chemistry: John Smith Knox Boyd, Frank Morton Robertson, and David Smith. In Botany: William Montgomery. In Zoology: Benjamin Cohen, Wallace MacCallum Conley, M.A., Nathaniel Crichlow, William John Henry, and Sarah Anderson Jamieson Rankine. In Chemistry: Henry Stanley Banks.

Second Examination.—In Anatomy and Physiology: Charles Cameron, M.A., William MacMurray, and Stuart Spence Meighan. In Anatomy and Materia Medica and Therapeutics: James Eric Paterson. In Physiology and Materia Medica and Therapeutics: David Thomas Crichton Frew. In Physiology: James Wallace Anderson, James Turner Brown, Leander Lowrie Fyfe, Andrew Smith Hannay, Farquhar Matheson, and Ellen Brown Orr. In Materia Medica and Therapeutics: Thomas Stewart Barrie and Hugh Paterson.

Third Examination.—In Pathology: Thomas Simpson Campbell, Andrew Scoble Findlay, Malcolm Angus MacDonald, Thomas Jones Mackie, James M'Alpine Scott, M.A., James Lachlan Ure, and Harold Edward Whittingham. In Medical Jurisprudence and Public Health: James Thomson Dick, James Dunlop, M.A., and William Macewen.

THE Bath board of guardians has granted a superannuation allowance to Mr. J. Davies, M.R.C.S. Eng., L.S.A., who for the past 36 years has been medical officer for the No. 1 district.

THE Paris Academy of Medicine has elected Dr. Courmont of Lyons and Dr. Oddo of Marseilles as corresponding members. The candidate who obtained the next highest number of votes was Dr. Collignon of Cherbourg.

MEDICAL MAGISTRATE.—The Lord Chancellor has placed the name of Mr. John M. Cuthbertson, L.R.C.P. Edin., F.F.P.S. Glasg., of Droitwich, on the commission of the peace for Worcestershire.

DONATIONS AND BEQUESTS.—The Rev. W. Howse has by will bequeathed about £25,000 to Guy's Hospital.—The late Mr. G. Smith, M.R.C.S. Eng., L.D.S., has left by will, subject to a number of bequests, the residue of his estate (£11,699), to be equally divided between the Royal Infirmary, Manchester, and University College Hospital, London. The money is to be used for the benefit of one or more of the surgical or dental staff of the institutions mentioned who may be incapacitated from their work by having become infected by any puncture or contracted blood poisoning whilst examining or operating on patients or after conducting post-mortem examinations.—By the will of Miss Frances Margaret More £1000 are left to the Royal National Hospital for Consumption and Diseases of the Chest, Ventnor, Isle of Wight, and like sums to the Adelaide Hospital, Dublin, and the Royal Isle of Wight Infirmary, Ryde. The St. Patrick's Home for Nurses, Dublin, receives £500.—Mrs. Annie Tomlinson, of West Hampstead, has bequeathed £1000 to the Cardiff Infirmary.—Under the will of the late Mr. John Kershaw, F.R.C.S. Edin., a sum of about £50,000 has been left for the purpose of establishing a hospital at Royton, Lancashire. The testator desires that "any such hospital and infirmary may as far as practicable be free and open to all applicants, and that no inquiry be made in any case as to the religious belief of applicants or whether they attend the services of any church or chapel, also that no clergyman or minister of religion or any Socialist or person known to hold or profess Socialist opinions be at any time a trustee, director, or manager of the said hospital and infirmary."

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Medical Acts Amendment Bill.

THE text of the Medical Acts Amendment Bill, which was recently introduced in the House of Commons by Mr. COOPER, has now been issued. As was explained in THE LANCET of last week the object of this Bill is (1) to require a medical practitioner applying for registration on or after Jan. 1st, 1911, to submit evidence of having received practical instruction in the administration of anæsthetics; (2) to prohibit any person not a registered medical practitioner administering an anæsthetic except under certain conditions; (3) to safeguard the rights

of all persons registered as dentists before the commencement of the Act; and (4) to prohibit any certificate of death being given in the case of any person dying under an anæsthetic.

The principal clauses of the Bill refer so directly to a subject which has engaged the close attention of the medical profession recently that they may be quoted *in extenso*. They are as follows:—

"Clause 1. On and after the *first day of January, one thousand nine hundred and eleven*, no person shall be registered under the Medical Acts in respect of any qualification referred to in any of those Acts unless he shall have produced evidence that he has received theoretical and practical instruction in the administration of anæsthetics.

Clause 2. Any person not a registered medical practitioner who shall administer or cause to be administered to any other person, by inhalation or otherwise, any gas or vapour, or drug or mixture of drugs, solid or liquid, with the object of producing unconsciousness during any medical or surgical operation, examination, act or procedure, or during childbirth, shall be liable on conviction before a court of summary jurisdiction for such offence, to a penalty not exceeding *ten pounds*, and, in the case of any subsequent conviction, to a penalty not exceeding *twenty pounds*: Provided that a person shall not be liable to a penalty under this section if in conducting such administration he was acting under the immediate direction and supervision of a registered medical practitioner, or if the circumstances attending the administration were such that he had reasonable grounds for believing and did believe that the delay which would have arisen in obtaining the services of a registered medical practitioner would have endangered life.

Clause 3. Power is hereby given to the General Council to make any regulation or order to carry out the requirements of this Act.

Clause 4. Any registered medical practitioner who gives a certificate of death in the case of any person dying while under the influence of an anæsthetic shall be liable, on summary conviction, to a penalty not exceeding *five pounds*.

Clause 5. Nothing in this Act shall prohibit a person registered under the Dentists Act, 1878, *before the commencement of this Act*, administering an anæsthetic during a dental operation or procedure."

Clause 6 provides that offences under the Bill may be prosecuted in the manner provided by the Summary Jurisdiction Acts, and lays down a corresponding procedure for Scotland and Ireland. Clause 7 defines the expressions "Medical Acts," "General Council," and "registered medical practitioner." The expression "General Council" means the General Council of Medical Education and Registration in the United Kingdom. Although the Bill is called "the Medical Acts Amendment Bill" Clause 8 lays down that when passed it may be cited as "the Anæsthetics Act, 1909.

Necessitous Mothers (Assistance) Bill.

Mr. ROBERT HARCOURT has introduced into the House of Commons a Bill "to empower local authorities to make provision for the assistance of necessitous women in contemplation of, and after, childbirth." The Bill, which was read a first time, gives local authorities power to levy a rate not exceeding 1*d.* in the £ to assist necessitous women during pregnancy and childbirth and for a short time afterwards with food, medical help, and nursing, the women agreeing to comply with regulations as to ceasing work for wages and to obey the orders of the nurse or medical man appointed by the authorities.

The Medical Treatment of Elementary School Children.

The Local Education Authorities (Medical Treatment) Bill, which has been introduced into the House of Commons by Mr. WALTER GUINNESS, has the support of a large number of Members on both sides. Its object is "to provide for the recovery by local education authorities of costs for medical treatment of children attending public elementary schools in England and Wales." It has been read a first time. The Members "backing" the Bill are Mr. ADKINS, Mr. BRIDGEMAN, Lord ROBERT CECIL, Mr. FELL, Mr. HENRY GOOCH, Mr. LEIF JONES, Mr. RAMSAY MACDONALD, Mr. MADDISON, Mr. PEEL, Mr. VIVIAN, and Mr. WHITWELL WILSON.

Infant Life Protection Bill.

Lord ROBERT CECIL has presented in the House of Commons a Bill "to prevent the destruction of children during birth." The measure, which has been read a first time, is backed by Mr. SHACKLETON, Mr. CHIOZZA MONEY, and Mr. SIMON.

The Superannuation of Asylum Officers in Scotland.

Sir JOHN JARDINE'S Bill to provide for the grant of superannuation allowances to officers and servants of public and district asylums in Scotland has received the support of a large number of Members sitting for Scottish constituencies. It was presented and read a first time in the House of Commons on Thursday, April 1st.

HOUSE OF COMMONS.

THURSDAY, APRIL 1ST.

Deaths from Uncertified Causes in the Highlands.

Mr. WEIR asked the Lord Advocate to state the number of deaths from uncertified causes in each of the Highland crofting counties during each of the last five years.—Mr. URE replied (by written answer): The information desired by my honourable friend is as follows:—

Deaths from Uncertified Causes in each of the Highland Crofting Counties during each of the five years 1903–07.

County.	1903.	1904.	1905.	1906.	1907.
Shetland	156	126	123	86	100
Orkney	52	55	39	49	46
Caithness	45	41	41	34	44
Sutherland	92	72	90	81	98
Ross and Cromarty ...	327	298	304	293	307
Inverness	337	279	258	251	261
Argyll	137	99	82	93	100

Escapes from Asylums.

Mr. CHIOZZA MONEY asked the Secretary of State for the Home Department how many imbeciles and lunatics had escaped from public asylums in the United Kingdom since Jan. 1st, 1909.—Mr. GLADSTONE wrote in reply: The Commissioners in Lunacy inform me that there have been 67 escapes from asylums in England and Wales this year. I am not in possession of the figures for Scotland and Ireland.

Mr. CHIOZZA MONEY also asked the right honourable gentleman whether the Lunacy Commissioners were making special inquiry into the exercising of imbeciles and lunatics in public places; and whether they had yet presented a report on the subject.—Mr. GLADSTONE replied: A report from the Commissioners in Lunacy of an inquiry which they made at my request into the escape of lunatics from the asylums in the neighbourhood of Epsom, and matters connected with the supervision of patients both within and beyond the asylum boundaries, was presented to Parliament on Monday last. This report gives also the views of the Commissioners, with which I concur, on the general question of exercising patients outside asylum boundaries.

Mr. CHIOZZA MONEY in a further question asked whether the attention of the right honourable gentleman had been directed to the escape from Brookwood Asylum, near Woking, of a lunatic named Wickenden; whether this man was of a violent disposition; whether he would explain under what circumstances the escape took place, and who was to blame for the occurrence; and what steps were being taken to protect the public in the matter.—Mr. GLADSTONE answered: I have received a report in this case from the Commissioners in Lunacy. It appears that Wickenden escaped in the early hours of last Friday by picking the locks of two doors. He is stated to be suffering from chronic mania but never to have assaulted anyone in the asylum. I have no information to show that blame attaches to anyone in the matter. The man was recaptured on the day after his escape.

The Consolidation of Public Health Law.

Mr. REES asked the President of the Local Government Board whether the Government proposed to consolidate the law regarding public health so as to bring together in one Act the different enactments relating to this subject.—Mr. BURNS furnished the following answer: I appreciate the advantage there would be in consolidating the Public Health Acts, though it would probably be found necessary in the first instance to amend them in some respects. I shall be glad to take steps in the direction indicated when opportunity offers, but I do not think it will be practicable to deal with the matter during the present session.

MONDAY, APRIL 5TH.

The Ambulance Service of the Metropolis.

In reply to Sir WILLIAM COLLINS, the Secretary of State for the Home Department stated that the valuable report presented by the committee on this subject had been received, but owing to the pressure of current work he could hold out little hope of dealing with the main recommendations, which involve legislation, in the present session.

Housing and Town Planning Bill.

Mr. BURNS, in moving the second reading of the Housing and Town Planning Bill, said that it was a new departure in legislation and he regretted that it had been so long delayed. The lack of some such measure 50 or 100 years ago affected the physique, the morals, the happiness, and comfort of the men, women, and children in our large towns. However, he was driven to the conclusion that late though the appearance of this measure was, it was better late than never. The Bill had been open to very little criticism and had had a very favourable reception and he hoped that by June it would reach the Statute Book. The right honourable gentleman described the provisions of the Bill. There were, he said, 62 county councils in this country and only recently one half of them had no medical officer. The Bill laid down that every county council should have a whole-time medical officer of health devoting his ability and services to public health and sanitation. The terms and conditions of the appointment and the conditions under which the medical officer worked were to be sanctioned and approved by the Local Government Board, and that would give satisfaction to a useful and honourable profession which had a right to be protected against the occasional capricious interference of a local authority which prevented the members of this profession doing their duty as they ought to be allowed to do it.

Mr. LYTTELTON, in a speech in which he expressed sympathy for the Bill, remarked that he could give a most whole-hearted approval to the institution of a statutory committee in each county council to deal with public health, and above all he thought more important still the appointment by every county council of a medical officer, whose whole time would be engaged and who would not have as at present occasionally a most awkward conflict between duty and interest, when he had to consider a question of condemning property which might be owned by lucrative patients of his own.

Sir WALTER FOSTER said in the course of his speech that one of the wise things in the Bill—wise as far as it went—was that the Local Government Board had decided that there was to be a medical officer of health for every county. It was one of the best things that could be done in the interests of public health and he had contended for it for some years. The county councils would now have a special expert to guide them in regard to the very difficult and responsible duties which devolved upon them with regard to public health and housing. Medical officers of health

had been doing good work, many of them under difficulties and in face of the opposition of those who employed them. He was therefore glad that they were to have a security of tenure, that they were not to be dismissed except with the consent of the Local Government Board, and that they would be whole-time officers. However, these conditions were not to be given to the medical officers who had been appointed for the smaller local authorities—some of them at salaries of £20 or £30 a year. These men had had a heavy duty devolving on them. They were the weaker links in the chain of sanitary administration. The county medical officers were the stronger links. In this Bill the right honourable gentleman could not give whole-time duties to these weaker links in the chain. However, if he gave them security of tenure and the right of appeal to the Local Government Board in case of wrongful dismissal, he would be doing a great work. In some smaller rural and urban districts at the end of 12 months a medical officer was dropped because he was a little too zealous and showed signs of interfering in the interests of public health with the property of the members of the council who employed him. The right honourable gentleman knew that there were cases where medical officers were not reappointed by district councils because they were doing their best to bring about a better state of housing in the district. That was a scandal which ought to be removed, and could be removed by a stroke of the pen if the right honourable gentleman would consent to insert a provision in the Bill giving these medical officers the right to appeal in cases of dismissal. At the present time medical men had a kind of union by means of which they were trying to prevent members of their profession from taking up appointments from which others had been wrongfully dismissed. To give a right of appeal to these medical officers against wrongful dismissal would be a great step in advance, and would render them more independent and able to discharge their duties according to their conscience. He hoped that a number of amendments would be inserted in the Bill to give effect to the views which he had put forward on this subject.

Mr. LANE FOX moved a reasoned amendment to the motion for the second reading, declining to throw fresh charges on the local rates.

Mr. HICKS-BEACH seconded.

Sir J. DICKSON POYNDER thought that the provision with regard to medical officers of health was one of the most important in the Bill. The Bill in its revised form established them on much more favourable terms than were originally proposed. The medical officer of health for the county had now under the Bill power to go all over the county area and inspect wherever he desired exactly on identical lines with the medical officers of health in the districts. This would give a great incentive to the exposure of bad sanitary conditions in country districts. As there was to be a Committee of Public Health and Housing attached to every county council there would be a regular established system supervising public health and housing in the counties, which was bound to improve the conditions.

After considerable discussion the amendment was defeated by 128 votes to 20, and the Bill was read a second time.

BOOKS, ETC., RECEIVED.

ALCAN, FÉLIX, Paris.

Le Diabète Sucré. Par R. Lépine. Price Fr.16.

BAILLIÈRE, TINDALL, AND COX, London.

Operative Nursing and Technique. By Charles P. Childe, B.A., F.R.C.S. Eng. Price 4s. net.

Differential Diagnosis of Bacteria and Practical Bacteriology. By E. P. Minett, M.D., D.P.H., M.R.C.S., L.R.C.P., F.C.S. Price 2s. 6d. net.

Aids to Medicine. By Bernard Hudson, M.D. Camb., M.R.C.P. Lond. Price, cloth, 3s. net; paper, 2s. 6d. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

Tuberculin in Diagnosis and Treatment. By Dr. Bandelier and Dr. Roepke. Translated from the Second German Edition by Egbert C. Morland, M.B., B.Sc. Lond., M.D. Berne. Price 7s. 6d. net.

BOHN, F. (De Erven), Haarlem. FISCHER, GUSTAV, Jena.

Die Krankheiten der Leber, der Gallenwege und der Pfortader auf Grund eigener Beobachtungen. Bearbeitet von Prof. Dr. P. K. Pel. Price M.8.

DENTAL MANUFACTURING CO., LIMITED, London.

Dental Surgery Notes. By Ernest B. Dowsett, L.R.C.P., M.R.C.S., L.D.S. Price 3s. net.

DEUTICKE, FRANZ, Leipzig und Wien.

Die Selbstmörder. Mit Besonderer Berücksichtigung der Militärischen Selbstmörder und ihrer Obduktionsbefunde. Von Privatdozent Dr. Anton Brosch. Price M.7.20.

ENGELMANN, WILHELM, Leipzig.

La Renaissance de l'Ophthalmologie. Par le Dr. Julius Hirschberg. Traduit de l'Allemand par le Dr. Daniël van Duyse. Price M.6.

FISCHER, GUSTAV, Jena.

Handbuch der Gesamten Therapie. In Sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte Auflage des Handbuchs der Therapie innerer Krankheiten. Zweite Lieferung. Price M.4.50.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. Studies on Immunity. By Robert Muir, M.A., M.D. In Collaboration with Carl H. Browning, M.D., Alexander R. Ferguson, M.D., and William B. M. Martin, M.B., Ch.B. Price 7s. 6d. net.

Suture of Arteries. An Experimental Research. By E. Archibald Smith, M.B., Ch.B., Victoria University, F.R.C.S. Eng. Price 2s. 6d.

HIRSCHWALD, AUGUST, Berlin.

Der Schiffsarzt. Leitfaden für Aerzte und Kandidaten der Medizin Von Dr. M. Bronning und Dr. E. H. Oppenheimer. Price M.1.60.

LEWIS, H. K., London.

Practical Bacteriology, Blood Work, and Animal Parasitology, including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes. By E. R. Stitt, A.B., Ph.G., M.D., Surgeon, U.S. Navy. Price 6s. 6d. net.

LIPPINCOTT COMPANY, J. B., Philadelphia and London.

Principles and Practice of Operative Dentistry. By John Sayre Marshall, M.D. Syr. Univ. Third edition. Price 21s. net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

The Influence of Heredity on Disease, with Special Reference to Tuberculosis, Cancer, and Diseases of the Nervous System. A Discussion opened by Sir William S. Church, Bt., K.C.B., M.D., Sir William R. Gowers, M.D., F.R.S., Arthur Latham, M.D., and E. F. Bashford, M.D. (From the Proceedings of the Royal Society of Medicine, 1909, Vol. II.) Price 4s. 6d. net.

MITTLER, ERNST SIEGFRIED, UND SOHN, Berlin.

Medizinal-Berichte über die Deutschen Schutzgebiete, Deutsch-Ostafrika, Kamerun, Togo, Deutsch-Südwestafrika, Neu-Guinea, Karolinen, Marshall-Inseln und Samoa, für das Jahr 1906/07. Herausgegeben vom Reichs-Kolonialamt. Price M.7.50.

MOSBY (C. V.) MEDICAL BOOK AND PUBLISHING CO., St. Louis.

Tuberculosis of the Nose and Throat. By Lorenzo B. Lockard, M.D. Price not stated.

NISBET, JAMES, AND CO., LIMITED, London.

Essays on the Position of Abdominal Hysterectomy in London. By John Bland-Sutton, F.R.C.S. Eng. Price 2s. 6d. net.

OPEN ROAD PUBLISHING COMPANY, THE, London.

Morals and England. By Frederic Fletcher. Price 1s. net.

PHARMACEUTICAL PRESS, THE, London.

The Pharmaceutical Pocket Book, 1909. Edited by John Humphrey. Price not stated.

REBMAN, LIMITED, London.

Surgery of the Upper Abdomen. In Two Volumes. By John B. Deaver, M.D., LL.D., and Astley Paston Cooper Ashhurst, M.D. Vol. I., Surgery of the Stomach and Duodenum. Price 21s. net.

Surgical Diseases of the Abdomen, with Special Reference to Diagnosis. By Richard Douglas, M.D. Second edition, revised and enlarged. Edited by Richard A. Barr, B.A., M.D. Price 26s. net.

Elementary Practical Treatise on Diseases of the Pharynx and Larynx. By Dr. E. J. Moure. Translated and adapted by J. Malcolm Farquharson, M.B., F.R.C.P. Edin. Price 12s. 6d. net.

RICHARDS, GRANT, London.

The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland, F.Z.S. In Twenty Parts. Part XIII. Price 7s. 6d. net.

ROUTLEDGE, GEORGE, AND SONS, LIMITED, London. (DUTTON, E. P., AND CO., New York.)

The Family Doctor. A Dictionary of Domestic Medicine and Surgery. By Edmund Barrett, M.B., B.S. Durh., M.R.C.S., L.R.C.P. Lond. Price 5s.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

Epoch-making Contributions to Medicine, Surgery, and the Allied Sciences. Being Reprints of those Communications which first conveyed Epoch-making Observations to the Scientific World, together with Biographical Sketches of the Observers. Collected by C. N. B. Camac, A.B., M.D. With Portraits. Price 18s. net.

SIEGLE, HILL AND CO., London.

The Therapeutics of Radiant Light and Heat and Convective Heat. By William Benham Snow, M.D. Price 10s. 6d. net.

SISLEY'S, LIMITED, London.

The Over-Production of Women and the Remedy. By Mrs. Erskine Price 2s. 6d. net.

SMITH, ELDER AND CO., London.

Saint Bartholomew's Hospital Reports. Edited by H. Morley Fletcher, M.D., and W. McAdam Eccles, M.S., F.R.C.S. Vol. XLIV. Price 8s. 6d. net.

SPOTTISWOODE AND CO., LIMITED, London.

The Medical Register. 1909. Price 10s. 6d.
The Dentists' Register. 1909. Price 3s. 4d.

STEINHEIL, G., Paris.

Pratique de la Chirurgie Antiseptique. Leçons professées à l'Hôtel Dieu. Par le Docteur Just Lucas-Championnière. Price Fr.8.

UNIVERSITY PRESS, Manchester. (SHERRATT AND HUGHES, London.)

Malaria and Greek History. By W. H. S. Jones, M.A. To which is added the History of Greek Therapeutics and the Malaria Theory. By E. T. Withington, M.A., M.B. Price 5s. net.

WALTER SCOTT PUBLISHING CO., LIMITED, London and Felling-on-Tyne.

Hypnotism. By Dr. Albert Moll. Translated from the Fourth enlarged Edition by Arthur F. Hopkirk. Price 6s.

WATKINS, JOHN M., London.

Nutrition and Evolution. By Hermann Reinheimer. Price 6s. net.

WRIGHT, JOHN, AND CO., Bristol.

The Medical Annual. 1909. Price 8s. 6d. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Health, Morals, and Longevity. By George Gresswell, M.A. Oxford and Cape, L.R.C.P. and S. Edin., L.F.P.S.G., and Albert Gresswell, M.A., M.D., Oxford, M.R.C.S., F.R.S.M. Price 5s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BATESON, HENRY, M.D., C.M. Edin., has been appointed Medical Officer for the Walkden and Worsley Districts by the Barton Board of Guardians.

STIFF, HAROLD, M.B. Cantab., has been appointed Surgeon to the West Suffolk Hospital, Bury St. Edmunds.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE DISTRICT INFIRMARY.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, washing, &c.

BIRKENHEAD UNION INFIRMARY AND SANATORIUM.—Resident Assistant Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £170 per annum, with rooms, fire, lights, and attendance.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRISTOL GENERAL HOSPITAL.—House Physician, Casualty House Surgeon, and Assistant House Physician for six months. Salary £60, with board, residence, &c.

BRIXTON DISPENSARY, Water-lane, S.W.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, attendance, &c.

BROWN ANIMAL SANATORY INSTITUTION.—Superintendent. Salary £300 per annum.

BURSLEM, HAYWOOD HOSPITAL.—Resident Medical Officer (female). Salary £100 per annum, with board, residence, and laundry.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and attendance.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.

CAPE OF GOOD HOPE, COLONY OF.—Leprosy Research. Salary at rate of £450 per annum, with quarters and three rations.

CENTRAL LONDON SICK ASYLUM, Colindale-avenue, Hendon, N.W.—Second Assistant Medical Officer and Dispenser. Salary £110 per annum, with board and residence.

CROYDON GENERAL HOSPITAL.—Honorary Medical Officer of the Ear, Nose, and Throat Department.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon and Assistant House Surgeon. Salaries £80 and £40 per annum respectively, with board and washing.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £60 per annum, with board and washing.

HAMPSTEAD GENERAL HOSPITAL.—Medical Officer in charge of the X Ray and Electrical Department. Salary 25 guineas per annum.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

HASTINGS, ST. LEONARDS AND EAST SUSSEX HOSPITAL.—Physician. Also Assistant Physician.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Salary £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon; also Assistant Casualty Medical Officer; both unmarried, for six months. Salary in each case £30, with board and residence.

HULL, ROYAL INFIRMARY.—House Physician, unmarried. Salary £100 per annum, with board and apartments.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c.

LAMBETH, PARISH OF.—District Medical Officer. Salary £50 per annum, with fees.

LANARK MIDDLE WARD ISOLATION HOSPITAL, near Motherwell.—Physician-Superintendent. Salary £200 per annum, with board, &c.

LINCOLN HOSPITAL FOR MENTAL DISEASES.—Assistant Medical Officer. Salary £100 per annum.

LONDON COUNTY COUNCIL GIRLS' INDUSTRIAL SCHOOL, 56, Brixton Hill, S.W.—Medical Officer. Salary £45 per annum. Also Dentist. Salary £15 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, CHORLTON-UPON-MEDLOCK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 per annum, with rooms and attendance.

MANCHESTER WORKHOUSE, Crumpsall.—Assistant Medical Officer, unmarried. Salary £130 per annum, with apartments, washing, and attendance.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £90 per annum, with apartments, board, washing, and attendance.

OLDHAM INFIRMARY.—Junior House Surgeon. Salary £75 per annum, with board, residence, and washing.

PADDINGTON INFIRMARY AND WORKHOUSE.—Medical Officer for six months. Salary at rate of £72 per annum, with board, lodging, and washing.

PECKHAM HOUSE, Peckham, S.E.—Second Assistant Medical Officer Salary £150 per annum.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board and residence.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician, all for six months. Salary of two former at rate of £75 per annum, and of two latter at rate of £40 per annum, with residence, board, and laundry.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Assistant-Surgeon.

ROYAL NAVAL MEDICAL SERVICE.—Examination for 15 Commissions.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, Lambeth, S.E.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, Strand, W.C.—House Surgeon for six months. Salary £25, with board, residence, and laundry.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £100 per annum, with rooms, board, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75 per annum.

TORQUAY, TORBAY HOSPITAL.—House Surgeon. Salary £100 per annum, with residence and board.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Physician to Out-patients.

WAKEFIELD, CLAYTON HOSPITAL.—Junior House Surgeon, unmarried. Salary £30 per annum, with board, lodging, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Physician. Also Assistant Physician.

Births, Marriages, and Deaths.

BIRTHS.

MORLEY.—On April 5th, at 29, Gower-street, Bedford-square, the wife of Arthur S. Morley, F.R.C.S., of a daughter.

SMYTH.—On March 30th, at Digby House, Melton Mowbray, the wife of James A. Smyth, M.B., of a son.

MARRIAGES.

DICKEY—CARTER.—On March 27th, at Christ Church, Turnham Green, William Craufuird McNaghten Dickey, M.R.C.S. Eng., L.R.C.P. Lond., to Rosamond Alice, only daughter of Mr. and Mrs. Charles Carter of Brighton.

DEATHS.

GEOGHEGAN.—On April 2nd, after a long illness, Alfred Osmond Geoghegan, M.D., Lieutenant-Colonel, R.A.M.C. (retired), in his 53rd year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SOME CHEMICAL REASONS FOR DETERIORATION IN LIQUID MEDICINES.

IN *Merck's Report* for March Mr. Frederic E. Niece calls attention to a number of chemical substances which do not keep well in solution. Chloroform water readily decomposes under the influence of heat, light, and air with the formation of acid by-products and the development of odours resembling those of phosphoretted hydrogen or decomposed marine algæ. The addition of 4 per cent. of alcohol is sufficient to keep this preparation indefinitely. Solutions of iodoform in chloroform are less stable than alcoholic solutions, because chloroform acts as a carrier of oxygen which liberates iodine in the solution under the influence of sunlight. Chloroform itself is decomposed in the presence of iodoform and the by-products tend to react with the iodine. Solutions of potassium iodide show the presence of free iodine within a very short time and afterwards potassium iodate, and so become a source of trouble from incompatibility and by producing unpleasant symptoms after administration. These changes may be retarded by keeping the solution in a cool, dark place, in full bottles, and by adding 0·2 per cent. of sodium thiosulphate. Ammonium iodide likewise readily forms free iodine when kept in solution, but the change may be lessened or prevented by the addition of a few drops of diluted ammonia. The decomposition of solutions of sodium hypobromite is a constant source of annoyance to many practitioners, owing to the deeper colour and loss in strength produced by the solution of traces of manganates from amber bottles. To prevent this change it is advisable to store the solution in green, blue, flint, or paraffin bottles with the addition of 10 per cent. of potassium bromide. The red colour produced in solutions of salts of eserine is caused by the combined action of light, atmospheric oxygen, and alkali present in the glass. This difficulty may be partially, if not completely, overcome by keeping the solution, prepared with sterile distilled water, in the dark in bottles coated on the inside with paraffin wax. As a further precaution Mr. Niece recommends the practice of covering the solution with a layer of washed and boiled liquid paraffin. This method is generally applicable in the case of sensitive and costly chemical substances which it is desired to keep in solution. In order to withdraw the solution from beneath the paraffin layer it is necessary to use a pipette, and since a solution of eserine is generally used for eye lesions the presence of a trace of oil is not objectionable. Solutions of lead acetate form heavy white precipitates of lead carbonate on exposure, unless restrained by the presence of a trace of acetic acid. These illustrations serve to show the dangers that may lurk in bottles of solutions and stock mixtures which have been kept for some time.

A SUGGESTION FOR TREATMENT.

To the Editor of THE LANCET.

SIR,—In reference to the treatment of the case mentioned by your correspondent "Perplexed" in THE LANCET of Feb. 20th, p. 589, allow me to suggest that he try ovarian extract. He states that the attacks seemingly have nothing to do with the menstrual period, but ovulation does not necessarily occur simultaneously with menstruation, and taking into consideration the age of the patient, I imagine that the headaches may be due to the approaching menopause. In two cases presenting somewhat similar symptoms I have been able to give relief by administering ovarian extract in five-grain doses three times a day for about a week at a time. Sometimes it was necessary to give it for a longer period, but I allowed myself to be guided by the symptoms.

A young woman, aged 26 years, on whom a panhysterectomy had been performed, consulted me complaining of severe headache. She had been treated by several practitioners, including an ophthalmologist, and had been given all kinds of treatment, including morphine, but without any permanent relief. I prescribed ovarian extract and the headaches became progressively less severe. Instead of being confined to bed for one week out of every month she gradually improved till by taking the remedy for a day or two she could avert an attack. The attacks in this case were preceded by "nervous" symptoms such as frequently usher in a menstrual period. I believe that the headache was due to loss of the internal secretion of the ovaries, and in my opinion in many cases the headaches occurring at the menopause are due to the same cause. I trust that this may be of service to "Perplexed." I am, Sir, yours faithfully,

Chicago, U.S.A., March 15th, 1909. M.D.

ACCIDENTS TO RAILWAY SERVANTS.

WE have received from Mr. T. A. Brockelbank a copy of a pamphlet dealing with a large number of accidents occurring among railway servants and advocating the adoption by English railways of automatic couplings. The figures in the pamphlet are very impressive and bring before us well the risks which have to be run by the employees of railways.

AN "ASEPTIC SCHOOL BOX."

WE have had forwarded to us a metal "school box" for the use of children. It is a flat box made of tinned iron, and measuring 9½ inches by 2 inches by ½ inch. Inside are metal partitions which divide it into convenient spaces for pen, pencil, and ruler. The box, which is made by the South Wales Canister Company, is stamped with the name, "Cymric Aseptic School Box." It could undoubtedly be made aseptic by boiling, but we fear that its normal contents will hardly be aseptic when in use. We would also suggest that if the "tin" edges of the box should damage the hands of its owner the advantage of its asepticity would very likely be counterbalanced by the complexion of the aforesaid hands. A wooden box, even though not aseptic, will to many seem preferable for the reception of the child's implements of learning as less likely to cause any abrasion.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—Arthur Whitfield, E. G. Graham Little): at 5 P.M.

Exhibition of Cases.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretary—Reginald Morton): at 8.30 P.M.

Dr. Sloan: Vulvo-vaginal Electrode for Ionic Medication.
Mr. T. J. Bokenham: Treatment of Hæmorrhoids by Zinc Mercury Ionisation.
Mr. N. S. Finzi: Treatment of Ulcers by Ionic Medication.
Dr. Horace Manders will show an Apparatus for the Production of Continuous Oscillations.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Millbank, S.W.

WEDNESDAY.—8.30 P.M., Surgeon K. D. Bell, R.N.: Physical Training and the Medical Profession.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., Demonstration:—Dr. F. Thomson: Infectious Fevers (at the North-Eastern Fever Hospital, St. Ann's-road, N.).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. H. W. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.

TUESDAY.—5 P.M., Clinical Demonstration: Dr. J. Mackenzie.

WEDNESDAY.—3 P.M., Clinical Demonstration: Dr. F. Palmer.

THURSDAY.—3 P.M., Clinical Demonstration: Dr. T. D. Savill.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: Middle Ear and Labyrinth.

FRIDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: Middle Ear and Labyrinth.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Dr. L. Braddon (Seremban) and Dr. A. E. Wellington (Singapore): The Etiology of Beri-Beri.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (15th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (17th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospital operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 7th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 1	29·86	N.	...	53	45	44	43	44	Overcast
" 2	30·47	N.E.	...	90	48	34	36	40	Fine
" 3	30·50	E.	...	88	53	38	38	41	Fine
" 4	30·46	E.	...	95	54	36	42	46	Fine
" 5	30·31	E.	...	97	53	37	39	42	Fine
" 6	30·32	E.	...	97	58	38	42	44	Fine
" 7	30·42	E.	...	87	58	39	42	45	Fine

During the week marked copies of the following newspapers have been received:—*Sanitary Record, Liverpool Express, Weekly Despatch, Dundee Advertiser, Evening News, Newcastle Journal, Midland Evening News, Walsall Advertiser, Yorkshire Observer, Birmingham Despatch, Aberdeen Evening Express, Morning Advertiser, Nottingham Guardian, Evening News, Daily News, Northern Daily Mail, Birmingham Post, Edinburgh Evening Despatch, Glasgow Herald, Dublin Times, &c.*

Communications, Letters, &c., have been received from—

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T.—Mr. T. Tulloch, Lond.; Messrs. Thrupp and Maberly, Lond.; Lieutenant R. G. H. Tate, R.A.M.C., Amballa; Torbay Hospital, Torquay, Secretary of; Toronto University, Librarian of Medical Department; T. B.

U.—Union Reklame, Lucerne.

V.—Messrs. Van Alexander and Co., Lond.

W.—Mr. G. Whittington, Rouen; Mr. W. A. Winship, San Diego; Messrs. W. Wood and Co., New York; The West Disinfecting Co., New York; *Wimbledon Borough News*, Editor of; Dr. E. Ward, Llanelly.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. F. C. Angear, Chatham; A. H. W.

B.—Mr. T. B. Browne, Lond.; Mr. G. W. J. Baker, Stourbridge; Mr. H. Butterfield, Northampton; Mr. W. J. Best, Louth; Mr. C. S. Bowker, Pontnewydd; Sir J. Crichton Browne, Dumfries; Brislington House, Bristol, Steward of; Dr. E. Birt, Wakefield; Beckett Hospital, Barnsley, Hon. Secretary of.

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